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WILLIAM S. EDGAR, M. D.

AND

D. V. DEAN, M. D.

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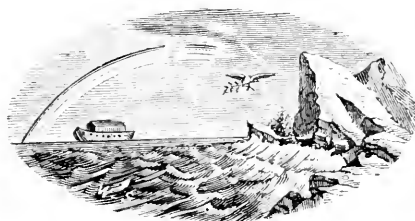
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THE SAINT LOUIS
Medical and Surgical Journal.
APRIL, 1876.

Original Communications.

*TRANSFUSION—ITS HISTORY AND PRESENT
STATUS.*

By T. F. PREWITT, M. D.

(Read before the St. Louis Medical Society.)*

A brief resumé of the history of an operation of such fascinating interest, around which clings so much of the romance of medicine, which has alternately excited the most extravagant hopes, and again lingered only as a tradition, can scarcely demand an apology for its presentation to this Society. We seek in vain in the misty records of the past for the first suggestion of a practice which has scarcely yet assumed its legitimate place among therapeutic agents. Medical philosophers of old dreamed of the time when the quick, warm blood of the young and vigorous, should be made to take the place of the thickened and sluggish current of the old and infirm, and infuse into them the fire of youth; when the blood of the sick, contaminated by the humors and concoctions of disease, bearing them to death, should be

*This paper was intended only as a compilation from various authorities, largely from the excellent article of Dr. Kay upon the subject in the Cyclopædia of Practical Medicine, and lays no claim to originality.

emitted from one vein, while the pure health-giving tide should be transfused at another. The pathology of the ancients, almost exclusively humoral, gave great plausibility to the idea, and ignorance of physiology and of the methods of experiment only, perhaps, prevented a resort to it.

Transfusion is nevertheless of very ancient origin. It is even asserted that certain lines of Ovid, dating back to the threshold of the Christian era distinctly refer to it. However this may be, fifteen centuries elapse before we find a record of the operation—and then in a most illustrious subject. In 1492 Pope Innocent VIII, having fallen into a state of habitual torpor, from which his physicians were unable to arouse him, a Jewish physician suggested transfusion, *as practiced upon the lower animals*. Accordingly, three young men were sacrificed in carrying out the suggestion, but without avail. The chronicle briefly relates that “the Pope followed them in a few days to mother earth.”

More than a century elapsed from this first discouraging record, when the discovery of the circulation of the blood by Harvey in 1613 revived the idea, and Libavius in 1615 gives explicit directions as to the mode of its performance. We have no other indications of the existence of the practice at that date, and nearly a half century elapses when, in 1652, Francesco Folli, an ardent and enthusiastic Italian, performed a number of experiments upon animals, at the Court of Florence, in the presence of the Grand Duke Ferdinand II. These experiments excited profound interest at the Florentine Court and among the distinguished medical men and foreign savants who witnessed them. The fame of them extended to other lands, and Folli was not without imitators. Among them, it seems strange to find the name of Sir Christopher Wren, London's great architect, whose fame is forever associated with St. Paul's Cathedral, the Fire Monument, Hampton Court, etc.

Yet such is one of the curious facts in the history of this subject. He had studied at one of the colleges of Oxford University, and about the time of Folli's experiments had been chosen Fellow of All Souls. Later, in 1657, he was made professor of astronomy, and in 1661 Savilian professor in the same Univer-

sity. He had not yet even entered upon the career that was to render him famous. But he had a great fondness for scientific studies. (*Treasury of Biography*, Longmans & Green, Publishers, London, 1873.)

His connection with transfusion, if we are to accept the statement of Dr. Bomba, of Glasgow, was not altogether creditable to him. According to this Scotch authority, Wren had heard through English travelers of the startling experiments of Folli, and did not scruple to repeat and publish them in 1657 as his own, without even mentioning the industrious Italian, to whom the real credit was due of having revived and put in practice what, for so long, had been but little more than a tradition.

Folli protested publicly against this ungenerous action of Wren and appealed to the Grand Duke to sustain his claim to priority. (See article by Dr. Bomba, in *Glasgow Medical Journal*, for May, 1873, copied into *Half Yearly Compendium of Medical Science*, January, 1874.) Both Wren and Folli had limited their experiments to animals. But these were sufficiently novel and wonderful to produce great excitement throughout the medical world. In 1665 Lower repeated these experiments in England, and was followed by Denys in France. Each contended for the honor of priority and a heated controversy arose. They were soon followed by Mayor, professor of medicine, at Kiel, in Germany, and Riva and Manfredi in Italy. It had now become an absorbing topic, and it was expected that the whole nature of animals could be changed by this exchange of blood, while underlying all were the startling possibilities of its application to the human subject. Yet none had been found with the courage to try it upon man. At length, Denys, of France, said to have been a mathematician, resolved to take the bold step, and on the 15th of June, 1667, he operated upon a young man fifteen or sixteen years of age, who had been greatly reduced by repeated hæmorrhages. He reported that a single transfusion restored him to perfect health. On the 23rd of November, of the same year (1667), Lower and King, of England, operated upon Arthur Cohn, a literary gentleman, who offered himself for the experiment. The operation was performed at Arundel House

in the presence of many distinguished and intelligent people. The carotid artery of a lamb was connected with the vein of his arm by means of a silver tube, and the blood allowed to flow for two minutes, when the experiment terminated. It was estimated that ten ounces were transfused. During the flow the arterial impulse was seen to communicate itself to the vein. The man felt the warm current extend up the arm and diffuse itself in a glow over his body. He declared himself benefited by the operation. He took supper with his friends and slept soundly.

The news flew over Europe, creating the greatest sensation. Every circle of society "from the courtier to the student of science," was agitated by the discussion of the subject of transfusion.

In Paris, Baron Bond, son of the prime Minister of Sweden, had been operated upon twice by Denys and Emmerez, for some affection of the bowels. He was reported to have been strengthened by the first operation, but died soon after the second. Their last experiment was upon a young man who, for seven or eight years, had been subject to violent fits of insanity, lasting, usually, for eight or ten months. His last relapse had occurred four months before the experiment. He had been confined at a place twelve leagues from Paris, but had managed to escape on a dark night and made his way to that city, quite naked. During these four months he is said to have been without sleep, rending his clothes, and endeavoring to tear everything he could lay his hands on. It was proposed to subject him to transfusion. Denys and Emmerez encouraged the idea, upon the ground "that the operation was incapable of causing the death of any one if discreetly managed," while the substitution of calf's blood, if not curative, might at least modify the violence of his symptoms. The operation was accordingly performed on the 19th of December, 1667, in the presence of many persons of distinguished rank and professional eminence. Ten ounces of blood were first drawn from the patient and six or seven only introduced. The man complained that he was about to swoon and the operation was discontinued. He took his supper as usual and passed the night in whistling, singing and other extravagances. No improvement

followed, and it was attributed to the small amount of blood transfused. It was, therefore, determined to repeat the experiment, and in a few days' time, the operation was performed in the presence of some of the most distinguished physicians of Paris. As he was greatly emaciated, only two or three ounces of blood were taken from him, and it was intended to introduce a pound, and a much larger quantity was transfused than in the first experiment. During the operation great disturbances occurred. His pulse became quick and irregular, he had pain in the loins, with a feeling of suffocation and nausea. It was followed by vomiting and purging, drowsiness and stupor, and for two or three days he passed "black" urine and had epistaxis and bloody stools—but *he was sane*. To relieve his distressing symptoms, he was bled. His mental condition continued to improve for two months, when after great excesses he relapsed, and again transfusion was resorted to, but only after the most earnest and repeated solicitations of his wife, and obtaining special permission from the Solicitor-General. It would seem from all this that Denys had some misgivings of the result. Upon making this third attempt it appears that very little blood was transfused. As soon as the operation was commenced, the patient was seized with shivering and complained of great oppression, crying out that he was dying, that he was suffocating. He died that night, and the tragic termination led to a legal investigation and an order prohibiting the operation, except with the consent of the Faculty of Paris.

This transfusion of the blood of animals into man gave rise to a controversy unparalleled in the history of medicine, and only approached in its exciting features by that aroused on the introduction of animal vaccination, more than a hundred years later. In France especially, it gave rise to the most violent excitement. Its advocates, with the zeal of enthusiasts, entertained and expressed the wildest hopes of the good to be accomplished by its introduction. Its opponents, with the characteristic obstinacy of the class which opposes all innovations, denounced its pretensions as unfounded, and its performance as "always dangerous and often fatal." According to its friends, the enfeebled

and diseased body and the disordered brain were alike to be restored by the transfusion of the purple tide of health, drawn at will from the plethoric veins of lambs and bullocks. Age was to take on the elasticity and ruddy hue of youth, and the span of life was to be tided beyond the three score years and ten of Holy Writ. Their antagonists derided its claims and vied with their rivals in the use of ignominious epithets and personal vituperation. The excitement culminated with the death of the insane man above referred to. The opponents of the practice charged Denys and Emmerez with killing the patient, and they, in turn, accused their enemies of bribing the man's wife to poison him, thus causing his death and bringing the operation into disrepute. Amidst the bitterness engendered, the State stepped in and silenced the controversy by forbidding the practice. Some fatal cases having occurred at Rome, the Pope, too, it is said, mindful of the fate of his predecessor, perhaps, issued a bull against it.

These prohibitions, combined with the public and professional disappointment in the results obtained, and the developments of serious dangers connected with the operation, brought it into discredit, and it sunk out of sight again for more than a century.

In 1785, Dr. Harwood, Professor of Anatomy in the University of Cambridge, revived it by making it the subject of his thesis, and exhibiting numerous experiments upon animals in his lectures on Comparative Anatomy. Dogs were bled, and a quantity of blood equal to that lost was transfused from the carotid artery of a sheep. Symptoms of uneasiness manifested themselves during the operation, and about twenty-four hours after, marked disturbances occurred, consisting of a shivering fit, thirst and fever, which usually disappeared next day, leaving the animal apparently well. Having frequently repeated these experiments, he found, by increasing or diminishing the amount of blood transfused, the general disturbances were increased or diminished. He therefore concluded that the febrile movement was due, and proportioned to, the quantity of arterial blood introduced into the right side of the heart, and the undue stimulation produced by it. To demonstrate this he conducted blood through a tube from the

jugular vein of a sheep instead of the artery, and the dog operated upon manifested no symptoms of uneasiness, either then or subsequently. Manifestedly in this latter experiment, very little, if any, blood was transfused, as the *vis a tergo* of the venous circulation would not be sufficient to force it into the circulation of the dog. The experiment therefore proved nothing.

In another experiment, two pounds of blood were abstracted from a pointer, and three pounds from the veins of other animals of the same species introduced. Great derangements followed. The animal vomited and purged, was drowsy, stupid and feverish, and had afterwards, copious evacuations of blood from the stomach, bowels and with the urine. He refused food for three days and became greatly emaciated in that time, but gradually recovered. Here we have as great or greater disturbances, from the introduction of venous blood, as in those cases where arterial blood was used, and certainly the experiment does not sustain the conclusion arrived at as to the cause of these disturbances.

Another dog was bled until he fell into convulsions and seemed about expiring. Blood drawn from the jugular vein of the sheep was transfused. Respiration was restored the moment the introduction of the blood commenced, and when a quantity equal to that lost had been introduced, the dog leaped from the table and ran home without manifesting, then or subsequently, any inconvenience. This experiment was frequently repeated, we are told, upon a variety of animals, and with equal success. Harwood's conclusion from these experiments was, "that the blood of a herbivorous animal may be substituted for that of a carnivorous animal, and *vice versa*, without danger, or even inconvenience." And yet his previous experiments had shown that the blood of one dog could not be substituted for that of another dog without producing very dangerous symptoms! In short, the conclusions at which he arrived embrace some of the questions that are still *sub judice* at this very day, though much light has been thrown upon them by recent investigations. Striking as were these experiments of Dr. Harwood, they did little towards removing the discredit into which transfusion had fallen.

About the beginning of the present century, Michele Rosa, an Italian, revived the neglected animal experiments, which he repeated in the presence of Scarpa, the celebrated anatomist.

The next few years mark an era in the history of transfusion, in a double sense. Heretofore the blood of animals had been used exclusively in the transfusion practiced upon man, and usually that of sheep and calves had been specially selected from a fanciful notion that its composition reflected the mild nature of these animals, and was unlikely to transmit any vicious qualities to the patient which the blood of other brutes might do. We find now transfusion from man to man taking the place of that from animals to man. We also have a practical application of its use, which gave it a footing it has never lost to this day.

In 1817, Blundell, the great obstetrician, hoping to find in transfusion the means of meeting one of the most appalling emergencies the accoucheur is called upon to grapple with, a threatened death from the frightful flooding that sometimes follows labor, instituted, first, a series of experiments upon animals. His conclusions are strikingly at variance with those of Harwood. He opened the carotid artery of a dog and injected the blood as it flowed into the jugular vein of the same animal, and kept up the process until the whole of the blood must have passed through the syringe several times. No disturbances whatever followed, and the experiment showed that the blood underwent no deterioration by passing through the instrument.

He revived a dog that had ceased to respire for five minutes and nourished another for three weeks by transfusion alone of the blood of the same species, while other dogs that had been revived after copious bleeding, died when large quantities of human blood were transfused. In the case of five dogs, he abstracted their own blood and injected human blood. Of these, one died on the table, two or three lived for a few days, then sank, and some survived for four or five days and expired after many cachectic symptoms. "So that it seems from experiments of this sort that the blood of one genus of animals cannot, in large quantities, be substituted indifferently for the blood of another, without occasioning the most fatal results." (*Blundell's Lectures on Midwifery.*)

He contended that human blood alone was fit for the operation in man and urged it also upon grounds of expediency. In using animal blood, "the presence of some animal in the bed-chamber was necessary: what then is to be done on an emergency? A dog, it is true, might come when you whistled, but the animal is small; a calf or sheep might to some have appeared fitter for the purpose; but then, it had not been taught to walk promptly up the stairs. In this condition of it, the operation, little more than a name, was great in its dangers, but of small advantage in those very cases of sudden bleeding in which it seemed most to be required." (*Blundell*, op. cit.)

To Blundell too, we are especially indebted for ignoring the fanciful dreams of the older transfusionists of making it a panacea for all ills, and pointing out its practical value in cases of imminent death from hæmorrhage.

Drs. Doubleday and Waller, disciples of Blundell, entered enthusiastically into the subject, defended it on all occasions and did much to popularize it with the profession, and Blundell indulges in a warm eulogy upon their efforts to establish it upon a firm footing.

About the same time Prévost and Dumas entered upon a series of still more elaborate experiments, failing however, to even mention the prior experiments of Blundell. (*Bostock's Physiology*, Vol. II. page 279—note.)

Up to this time it might be said that nothing was known of the distinctive differences of the blood of different species of animals. The existence of blood corpuscles had been discovered by Swammerdam in the frog in 1658, by Malpighi in the hedgehog in 1661, and by Leuwenhoek in man in 1673; but it was left to Prévost and Dumas to point out that these corpuscles had characteristics of size and shape, almost as distinctive as the species they represented.

From them we learned that these corpuscles are elliptical in birds and cold-blooded animals, and spherical in mammals; that they are greater in numbers relatively in birds than in mammals, and in warm than cold-blooded animals.

According to their experiments too, these differences were

found to bear a marked relation to the disturbances produced by the transfusion of the blood of different species. An animal bled to the point of death, and the blood of another of a different species, in which the globules are of the same shape but different in size, transfused, was only imperfectly restored, and usually died within a few days, the excretions containing blood.

The blood of a mammal, containing spherical globules, transfused into a bird, in whom the globules are elliptical, was followed by the death of the bird, with all the symptoms of poisoning, with great distress of the nervous system.

The experiments of Prévost and Dumas proved too that the vivifying power of the blood does not reside so much in the serum, as in the red blood corpuscles. An animal bled to syncope was not revived by the injections of water or pure serum, at a proper temperature, but if blood of one of the same species was used, the animal seemed to acquire fresh life at every stroke of the piston, and was at length restored." (*Dunglison's Physiology.*)

The investigations of Dieffenbach and Bischoff fully confirmed those of Blundell, Prévost and Dumas, as to the indiscriminate use of the blood of different species, and especially as to the fatal effects of transfusion of mammalian blood into birds.

Transfusion having received the sanction of such high authority, and the practical indication for its use having been clearly defined, we find it gradually securing a foothold as a recognized therapeutic agent. Yet up to 1861, Prof. Martin, of Berlin, was able to find but fifty-seven cases upon record, of which number forty-five recovered. (*London Medical Times and Gazette*, 1861.) Since that date, however, hundreds of cases have been reported and the record is still increasing.

In spite, however, of the experience these cases have afforded, many questions in connection with it remain to be settled.

A brief consideration of some of these may not be uninteresting.

What are the dangers to be apprehended?

Shall the blood be defibrinated or undefibrinated?

Shall it be arterial or venous?

Shall it be injected into a vein or an artery?

Shall animal or human blood be used?

In what class of cases shall we resort to it?

The dangers connected with transfusion are real and formidable, if proper precautions be not observed. They are worthy of consideration to enable us to avoid them, not to deter us from its performance.

From the too rapid introduction of the blood, we may have, according to Brown-Séquard, paralysis of the heart from overdistension of the right ventricle.

Another class of accidents, connected with the too rapid introduction of blood, is thus described by Prof. Béhier. The patient falls into a sort of inertia, the face becomes pale and puffed, while the eyelids are swollen and assume a slightly violaceous color, the torpor is well nigh complete and the patient dies, not suddenly, but at the end of some hours. The explanation of this occurrence is involved in some obscurity, but it is of the utmost importance to prevent so redoubtable an accident. A symptom of the threatened imminence of this condition, to which Mons. Béhier attaches great importance, is the occurrence of a slightly dry cough. "Whenever this is observed the injection should be arrested, for it is the first indication of a commencing pulmonary congestion, and is the slightest degree of the accident just mentioned." (*Medical News and Library*, May, 1874.)

If blood in large quantity be transfused, destruction of red blood corpuscles takes place, and hæmoglobin in excess beyond the ability of the kidneys to eliminate is set free, and we have an acute nephritis with suppression of urine and uræmic poisoning.

Embolisms may occur from the formation of coagula: air may be admitted into the veins and result disastrously.

Lastly phlebitis may ensue. Blondell treats this danger lightly, and declares it to be "a neat topic of declamation" to be thought of after the patient has been rescued from the threatened death by hæmorrhage. Yet it is an accident that has been referred to by a number of authorities and a few cases reported. It has been known, too, to occur in the lower animals. Mr. Jas. Farrell, veterinary surgeon to the Lord Lieutenant of Ireland, re-

ports an instance in the horse, where both the giver and receiver of the blood suffered from phlebitis after immediate transfusion. (*Abstract*, January to June, 1858, from *Dublin Quarterly Journal of Medicine*.)

Farrell also noticed dilatation of pupils in the horse as indicating danger.

An accident *always present*, according to Casse, is shivering following the operation in a quarter or half an hour. And this no matter *what* blood may be employed. (*London Medical Times and Gazette*.)

Perhaps upon no point connected with the whole subject, is there such irreconcilable difference of opinion, as upon the use of defibrinated or non-defibrinated blood. Bischoff first announced that defibrinated blood had the same restorative action as that containing fibrin, and it was believed this physiological fact removed one of the greatest dangers connected with transfusion, viz.: coagulation.

Prof. P. L. Panum, of Copenhagen, in a series of carefully tried experiments, the results of which were published in 1862. (*Year-Book*, 1863, from *Virchow's Archives*), arrived at a similar conclusion, stating that "the defibrination of the blood, even when all the natural blood of the animal is replaced by defibrinated blood from another animal of the same kind, brings no notable disturbance to pass," and also that "the substituted defibrinated blood, provided the animals be of the same kind, maintains its vitality and constitution as long as the natural blood; the corpuscles undergo no special variations in amount, and the secretions exhibit no disturbance."

Leisrunk also strongly urges the use of defibrinated blood to avoid the danger of thrombosis and embolism, and believes the beating up of the blood has a positive advantage in enabling the blood corpuscles to take up plenty of oxygen.

Among others who advocate defibrination, may be mentioned Playfair, of London, Hueter, of Greifswald, Morton, of Philadelphia.

On the other hand, Gesellius, of St. Petersburg, objects strongly to defibrinated blood and gives statistics bearing upon the subject.

Of 146 transfusions made with pure human blood, 67 died, or 45.89 per cent., while of 115 transfusions made with defibrinated blood, 76, died or 66.08 per cent. He further declares that "defibrination is not only useless, but absolutely injurious, because small fibrinous clots and rouleaus of blood corpuscles are always abundantly present in blood which has been whipped and stirred to remove the fibrin, and there is therefore the danger of producing embolisms by their means." (*London Medical Times and Gazette*, October, 1874.)

Prof. Guiseppi Albini, of Italy, "does not think that any fluid obtained by defibrination is worthy the name of blood." (*Medical Times and Gazette*, September 5, 1874.)

Grailey Hewitt, while advocating the use of pure blood, quotes a statement of Brown-Séquard, "that the introduction of defibrinated blood has, in animals, induced sudden coagulation of the blood and death." (*Year-Book*, 1863.)

In view of these adverse opinions, Prof. Panum has felt called upon to re-assert, in a recent article, his former views and to declare that "by using defibrinated blood you avoid the risk of embolism, which is considerable when entire blood is used," and that "defibrinated human blood should always be used." (*American Journal Medical Sciences*, January, 1876, from *Virchow's Archives*.)

It will thus be seen that very positive and contradictory views are held by the highest authorities upon this point. I apprehend there are few who would doubt the superiority of non-defibrinated blood, if a satisfactory method of conveying it direct from the giver to the receiver could be devised. But it is the difficulty of accomplishing this object in the emergencies calling for a resort to transfusion, that brings up the question. And until some safe and easy means of direct transfusion shall surmount these difficulties, the use of defibrinated blood must be the method most commonly resorted to.

To prevent coagulation, the great danger in the use of pure blood, Mr. John Soden, F. R. C. S., in 1852, suggested the mixture of a small quantity of carbonate of soda with the blood,

which while it would hinder coagulation might also stimulate the heart. (*Medico-Chirurg. Review*, April, 1853.)

In a paper in Guy's Hospital Reports for 1869, Dr. J. Braxton Hicks advocates the addition of a solution of fresh phosphate of soda (as proposed by Pavy) to the blood, to prevent coagulation, and reports four cases in which it was resorted to. But the experience with these methods is too limited as yet to enable us to form any just judgment of their merits.

The transfusion of human blood from artery to artery, or from artery to vein, has found advocates among some German surgeons, as Haase, of Nordhaussen, Küster, of Berlin, Sander, of Barmen, and Schliep, of ———; but the difficulty of finding persons willing to supply the blood upon the condition of having a radial or ulnar artery severed and ligated, is likely to prevent its ever becoming a method in general use. Küster, however, reports two cases of transfusion from artery to artery in man, as proposed by Schliep, and thirteen cases from artery of sheep to artery of man, and claimed that "the operation was simple and never interfered with by accidents, and that the wounds healed without any disagreeable occurrence."

Transfusion of animal blood by connecting the artery of the animal with the vein of the patient was the original mode of Denys, and the only mode until the time of Blundell. It has of late years been revived and practiced by Gesellius and Hasse. It is open to whatever objections may be urged against the use of animal blood, and to the further very serious objection, that in the very cases where transfusion is most urgently demanded, imminent death from sudden hæmorrhage, there is not likely to be found a calf or sheep at hand to supply the blood.

Prof. Hueter, of Greifswald, strongly urges the injection of the blood into an artery rather than a vein, using defibrinated blood. He introduces the canula of the syringe into the radial or postero-tibial artery, and the blood is made to reach the heart through the periphery. He claims for this method that the blood is conveyed to the heart more slowly and equably than in venous transfusion, thus avoiding the danger of paralyzing a heart al-

ready enfeebled to the lowest ebb, by over-distension of the right cavity by the sudden influx.

Secondly, if a small quantity of air is admitted into the artery, it does no mischief, but becomes absorbed.

Thirdly, the danger of phlebitis is avoided.

Fourthly, a larger quantity of blood can be forced into the general circulation with less risk of the accidents attendant at times upon transfusion.

Fifthly, it is much easier to pass the point of the syringe into the patulous orifice of the artery than into a collapsed vein.

He admits, however, that it requires much more pressure to drive the blood into the artery than into the vein. This is a serious objection.

It was stated at one of the meetings of the London Obstetrical Society, a few years ago, that a distinguished Hamburg surgeon, who had attempted this method, had to abandon it and resort to venous transfusion. Esmarch, of Kiel, also follows Hueter's method.

The condition of the hand or foot during the operation is very striking. "Although extravasation has not been observed, yet the finest vessels undergo great expansion, the papillary bodies being filled with more blood than even in a condition of inflammation. The skin becomes swollen and of a purple color, especially on the dorsal surface. The color is even seen through the thick epidermis of the heel. At the end of the transfusion all swelling and discoloration disappear, a profuse sweat covering the hand or foot." (*Half Yearly Compendium.*)

The question as to the use of animal or human blood is a most important one. Should human blood be used to the exclusion of animal blood, or may they be used indiscriminately?

The conclusion to be drawn from the experiments of Blundell, and of Prevost and Dumas, is to the effect that the danger of the transfusion of the blood of one animal into the veins of another, is in proportion to the dissimilarity of species.

In 1857, Brown-Séquard, in a paper presented to the Academy of Sciences of Paris, endeavored to prove "that arterial or venous blood from an animal of any one of the four classes of ver-

tebrata, containing oxygen in sufficient quantity to be scarlet, may be injected without danger into the veins of a vertebrated animal of any one of the four classes, provided that the amount of injected blood be not too considerable." He believes that Prevost and Dumas were in error in attributing death in the case of birds, in whom the blood of animals had been transfused, to any poisonous effect of the blood *per se*. He thought it was due to want of oxygenation, the transfusion of too great an amount, etc." (*London Medical Times and Gazette*, January 9, 1858.)

Küster, of Berlin, believes that the transfusion of animal blood is not equivalent to human blood, and gives as the result of his observations, that the general symptoms after transfusion of human blood were rather agreeable to the patient; while "after the injection of a few ounces of animal blood, there followed dyspnoea, cyanosis, pains in the back, and shivering with rise of temperature." (*American Journal of Medical Sciences*, July, 1874, from *British Medical Journal*.)

Gesellius, of St. Petersburg, in an elaborate monograph published in 1873, affirmed that the generally accepted opinion, that the blood of one species of animals is a poison if it enters the circulation of animals of another species, is altogether fallacious. By numerous experiments he claimed to have proved that an animal can, without previous depletion, receive into its veins an amount of blood from another animal equal to a twenty-fourth part of its own blood, and yet suffer no injury whatever. He closes his monograph with the words: "the transfusion of lamb's blood inaugurated a new era in medicine—the era of blood distribution." (*London Medical Times and Gazette*, December, 1874.)

Dr. Oscar Haase, of Nordhausen, uses lamb's blood by direct transfusion from the carotid artery to the vein of the patient, and reports good results in about thirty cases in which he had operated. (*American Journal of Medical Sciences*, July, 1874.)

Many other distinguished surgeons have also resorted to transfusion of animal blood in the last few years, among whom are

Esmarch, of Kiel, Demme, of Switzerland, who thinks its use will greatly facilitate its introduction into military surgery, Sander, of Barmen, etc.

One of the phenomena connected with the transfusion of animal blood has been the occurrence of blood and albumen in the urine, a fact observed in the second case operated upon by Denys and Emmerez in 1667, as it is stated the man passed for a day or two "*black urine*." Hæmaturia was also observed by Dr. Harwood in the case of a dog into whose veins a large quantity of blood taken from another dog had been transfused. It has been very frequently observed in later years. Of sixteen cases reported at a sitting of the Medico-Physical Society of Dresden by Dr. Oehme and others, in which lamb's blood had been used, most of them were followed by hæmaturia, or hæmoglobinuria, as Ponfick proposes to call it. Nor were the results at all satisfactory. (*Lancet*, August, 1874.)

Haase reports it as having occurred in six cases out of forty in which he had performed direct transfusion of lamb's blood. He declares, though, that this complication is not the result of the transfusion of lamb's blood, but that it occurs with many times the severity, when defibrinated human blood was used.

How are we to account for the discrepancy in the observations and conclusions of different surgeons who have practiced transfusion?

The investigations of Landois, of Greifswald, throw a flood of light upon the subject, and probably furnish a clew to the accidents connected with it. He found that the blood of an animal of one species transfused into another, underwent very marked changes, the rapidity of the changes varying with the species and the temperature.

The most marked of these changes was the dissolution of the red blood corpuscles and the setting free of the hæmoglobin. This change took place most rapidly in the blood of rabbits, most slowly in that of dogs and pigeons. On mixing frog's blood with the blood of other animals, it was found "that the red blood corpuscles, often after first assuming an irregular outline, and exhibiting lively molecular movements, became perfectly glob-

ular, and so appeared smaller than before. They then became paler and paler, till at last only the 'stroma' remained visible, and this at last, also disappeared. The 'stromata' [the blanched, pale, globular residue of the red corpuscles after removal of the coloring matter—Rollet] often aggregate into masses and then can give rise to embolism and consecutive inflammatory phenomena." (*American Journal of Medical Science*, October, 1874.)

But Landois also made another very singular discovery. He found that upon the injection of the *serum* of mammalian blood into a frog's veins, hæmoglobin and albumen appeared in the frog's urine for several days, showing that some of the red corpuscles of the frog had undergone dissolution as well, making it probable that in every case of transfusion a portion of the red corpuscles of both the giver and receiver of the blood undergo destruction. This result varied according to the species from which the serum was obtained, and when but a small quantity of the serum was injected, albumen only appeared in the urine.

This partial destruction of blood-cells by the foreign serum introduced, he thinks, may lead to dangerous symptoms, such as "immensely quickened respiration, dyspnea, convulsions, and even death." (*Ibid.*)

The hæmoglobin set free by the dissolution of the red corpuscles is excreted principally by the kidneys. If it be not too great in quantity, they may be equal to its elimination—otherwise it may appear in the excretions from the bowels, the uterus, the bronchi, and may even be exuded into the serous cavities. If the quantity be very large, the kidneys are overtaxed. Congestion and inflammation occur, excretion of urine is interfered with, and hæmoglobin, albumen, and tube casts, appears in the urine. (Ponfick.)

While then the numerous cases of the successful use of animal blood show that it *may* be used in many cases without ill effects, if the quantity introduced be small, yet it would appear that the danger of the operation is increased by the use of such blood and in proportion to the amount transfused.

As to the class of cases in which transfusion is indicated, the

principal and most universally recognized at this day, is, as pointed out by Blundell, that in which death is imminent from sudden hæmorrhage. Taking an obstetrician's view of the matter, he regarded it as especially applicable to post-partum hæmorrhages.

Dr. Barnes, the eminent London obstetrician, taking the same view, remarks that "every one who had seen a woman perish from flooding must have been haunted by the regret that he had not been prepared with the means of transfusion." (*Medical Times and Gazette*, March, 1859.)

But it is equally applicable to all forms of hæmorrhage, whether post-partum, or from menorrhagia, or intestinal in typhoid fever, or from the severing of blood vessels by injuries.

After great and rapid loss of blood, we have both a physical and physiological demand to be met. There is lacking the necessary volume of fluid for the heart and blood vessels to act upon, and a deficiency of the carriers of oxygen to the tissues—the red blood corpuscles. The breathing is rapid, air enough enters the lungs, but there is nothing to take up its oxygen—the pulse is feeble and fluttering or imperceptible, the surface is becoming cold, and the patient's life hangs by a thread. A few ounces of blood transfused at the critical moment, and the patient is snatched from the very embrace of death.

Here then is, and must ever be, the great field of its triumphs. But it has been resorted to in many other conditions. It has been tried, and it is claimed with some success, in poisoning by carbonic oxide (Hueter, Jürgensen, Euwald); in phthisis pulmonalis (Haase, Thurn); in insanity, in excessive anaemia, etc. It has also been tried in septicæmia and pyæmia, but without good results. As has been aptly pointed out by Billroth, "even if it were possible in such cases to renew all the blood in the system, the success of the operation would hinge upon the assumption that the putrid poison was present in the blood only, which is neither proved nor yet possible."

He goes further and declares that there are neither theoretical nor practical reasons to expect anything at all from transfusion in chronic diseases. And this, with few reservations, will doubtless be the verdict of the profession eventually.

Nicolai Tabouré, of St. Petersburg, performed a number of experiments upon dogs, illustrating a practical point in transfusions, of great interest. He injected defibrinated blood, in from ten to thirty minutes after the amputation of a limb, and in every case the animals died from an uncontrollable general oozing from the stump. He concludes that the substitution of defibrinated blood for normal blood sets up a sort of hæmophilia, and thus renders its employment, after capital operations, not only useless but mischievous. In other experiments, he performed transfusion the day before, and the day after, amputation, and in these no oozing occurred. He therefore concludes that it would be safe at such intervals. (*Medical Times and Gazette*, October 17th, 1874.)

What quantity should be injected?

In a large porportion of the cases reported the quantity injected has ranged from two to ten ounces. The observations of Blundell, Brown-Séquard, Landois and Ponfick lead to the conclusion that the dangers increase in direct ratio with the amount injected. In a large percentage of cases where much blood has been injected, whether animal or human, hæmoglobin and albumen have appeared in the urine. It would seem therefore that the object of transfusion should be not to replace the whole or even the greater part of the blood lost, but to supply so much of it as may be necessary to maintain the functions of the circulation, and sustain life until the blood-making organs can replenish the depleted current.

Two or three ounces may be sufficient to turn the scale and rescue a human life. The amount injected should rarely, if ever, exceed ten or twelve ounces.

In order that transfusion may become an agent in general use, the apparatus for its performance should possess the requisites of simplicity, freedom from the dangers of the admission of air, easily kept in order, readily obtained or easily improvised and *cheap*.

ON THE ANATOMY AND PHYSIOLOGY OF THE
FEMALE PELVIC ORGANS IN THEIR RELATIONS
TO UTERINE PATHOLOGY
AND THERAPEUTICS.

By S. N. DENHAM, M. D.

Read before the Kansas City District Medical Society, March 9th, 1876.

Lest it may be concluded that I have entered upon a field of enquiry already too well explored for aught to remain either new or interesting, I wish to call to your minds the present state of knowledge upon the subject, in so far at least as I have been able to collect the same.

If we start out with the enquiries:—Where is the uterus located and how is it sustained in its plane in the pelvis? What are its size, and relations to the other pelvic viscera? What are the length and some of the peculiar characteristics of the vagina, and how is the same supported and retained in its relations with the other organs and tissues? Where are the ovaries located? What is the use of the broad and also of the round ligaments? What constitutes the utero-sacral and utero-vesical ligaments, etc.?—we will find in the answers given to these questions a want of uniformity and a difference of opinion so wide, as to clearly mark a lack of accurate knowledge, such a lack as ought not to exist with regard to purely anatomical questions at least.

Thus, Gray tells us the anterior column of the vagina is four inches long, while the posterior column is five or six inches long.

Churchill and Tyler Smith state the same. Dewees mentions having seen the canal only one and a half inches long. Bennet says, "the vagina is a membranous canal, the length of which varies greatly in different individuals according to their size and individual peculiarities." Meigs says, "the vagina is two and a half inches long, in the general it ought to be three, but not one woman in a thousand has it so long, and not one in ten thousand of those who are mothers."

T. Gaillard Thomas remarks, "the anterior wall of the vagina is two inches long and the posterior twice that length."

Velpeau estimates the length of the vagina at from three to four, Cloquet from six to eight, and Klob and Hyrtl, at two and three-fourths inches; and the latter states that under some conditions of posture, etc., the vagina may become so short, that the os uteri "will only be an inch above the entrance of the vagina."

I wish here to particularly impress these statements upon the mind, because they have an important bearing upon the current theory of uterine support, and therefore upon the pathology and treatment of uterine displacements.

By a very natural course we pass from the examination of the vagina to that of the uterus, the great central organ of the female generative apparatus, and here we again meet with statements as widely at variance as those we have passed over.

Gray says the uterus is three inches long, two inches wide, and one inch thick. Meigs estimates the length at two and a fourth inches, width, one and a half inches, and thickness, one inch.

According to Krause the greatest length of a normal uterus is three and a half inches.

Bennet remarks that "even in the woman who has borne children the uterus in its healthy state, does not weight more than two ounces.

Neimeyer assures us that in case of acute parenchymatous metritis or infraction, the uterus sometimes becomes as large as a hen's-egg.

But I will not weary you longer with instances of the same or like character.

Next I will notice what is said of the position of the ovaries. Gray says they are "situated one on each side of the uterus in the posterior part of the broad ligament, behind and below the Fallopian tubes."

Bennet has left on record this remarkable sentence: "The ovaries are situated in the posterior folds of the broad ligament, behind the Fallopian tubes, in front of the rectum, from which they are often separated by some folds of the small intestines."

I do not remember any other gynaecologist who has signalized in any manner, even the probable location of these little organs. Possibly some one may say it does not matter as to where the exact position of these *petit* bodies is. How shall we know the abnormal, if we do not know the normal?

But I will not stop to argue this question here.

It remains for us to review the ligaments of the uterus and its means of support. These ligaments are said to be six in number, all constituted of peritoneum; viz.: two utero-vesical, two utero-sacral and the two broad ligaments.

Theoretically we might suppose that the uterus is supported by its ligaments, but we are told differently.

T. Gaillard Thomas, James Henry Bennet, Seanzoni, Kiwisch, and Klob, believe the vagina to be the chief support of the uterus, and that the so-called ligaments only aid the vagina in this office. Bennet says the inferior pelvic fascia "probably assists the vagina to support" the uterus; and Klob mentions the pelvic fascia as assisting by its attachment to the vagina, but more particularly by the formation of the utero-sacral ligaments, which he regards as powerful uterine supports.

Such are the current views of uterine support entertained by the most eminent gynaecologists of the present day. Views which have been seemingly confirmed by experiments upon the cadaver, made by Dr. Henry Savage, of London.

I have presented these views, not for the purpose of idle criticism, but to show the need of impartial investigation in this field of enquiry.

My own observations, running back through years of tedious labor, have led me to conclusions not wholly entertained by any one else, so far as I have been able to learn. I here allude more particularly to the means and mode of uterine support. Finding all theories unphilosophical and unsatisfactory, years ago I set about to investigate the subject with a fixed determination to find the truth if possible. I sought every available means of testing for the secret.

I arrived at the conclusion that the pelvic fascia had much to do with the support of the uterus; but in no book within my reach

could I find any general description of the pelvic fascia in the female. I resorted to the study of the fascia of the male. Finding a fascia closing the outlet of the pelvis under the name of recto-vesical fascia and the triangular ligament, I concluded that the analogue of the latter was the anatomical desideratum, and such I have found it to be. After having concluded that the vagina and uterus are sustained by the pelvic fascia, the enquiry very naturally arose, how are these organs connected with the pelvic fascia? On this point authorities are very unsatisfactory; for instance, Gray says, "the vagina perforates the pelvic fascia and receives some fibres from it." Some hasty dissections made upon the lower animals showed me that there was an actual union of the fascia and uterine tissue, at the vaginal junction.

This, to me, was an important fact, but here I did not grasp the whole truth. Like others, I supposed the fascia to pass back and form the so-called utero-sacral ligaments. In the absence of positive demonstrations, I was probably much influenced by the following words of Klob: "On both sides of the rectum two thick fibrous bundles of the hypogastric fascia extend towards the posterior surface of the cervix, etc."

On prosecuting my investigations by careful dissections, I was much surprised to find no fascia projecting back from the posterior surface of the cervix to the sacrum "on either side of the rectum." I did not find any strong ligaments, but only a very delicate layer of peritoneum passing back over the posterior vaginal *cul-de-sac*, and ascending the rectum and wall of the pelvis.

Thus, I found the strong utero-sacral ligaments located in the brain of the anatomist, and in the genetic fancy of the obstetrician and gynecologist.

I do not believe it possible, by any verbal description, to convey an accurate idea of the course and influence of the pelvic fascia in the female. Not because it is so complicated, for it is very simple and easily understood, when once seen. But I know of nothing to which it can be compared; and besides this, there are the old ideas creeping into the mind and confusing it.

This structure in the male is very simple in its disposition, and

is, perhaps, the best basis for a description of the analogous structure in the female.

We find the pelvic fascia in the male to be continuous with the transversalis and iliac fasciæ; and descending into the pelvic basin it divides into the obturator and recto-vesical fasciæ; the latter joins from the two sides and unites in front with the triangular ligament, to close the outlet of the pelvis. The point of union of the recto-vesical fascia and triangular ligament, is at "the central tendinous point of the perineum." The triangular ligament, or deep perineal fascia, supports the base of the bladder and is perforated by the urethra.

Now if we recollect that the recto-vesical fascia is the same in the female as in the male, and that the triangular ligament again supports the bladder, and is perforated by the urethra, we will catch the first idea of the structure in the female.

Again, remember that the vagina does not perforate the pelvic fascia at any point.

The triangular ligament, or deep perineal fascia, passes back to the neck of the uterus with which it is intimately connected, or rather which it forms.

On either side of the median line, as far back as the posterior surface of the cervix, the fascia passes to the pelvic walls, but does not do so posteriorly; here it curves backward and downward, and then forward, to join the recto-vesical fascia, at "the central tendinous point of the perineum." Thus is formed the posterior wall of the vagina.

Just posterior to and beneath the attachment of the ovaries to the pelvic wall, the fascia, as it leaves the wall to reach the cervix uteri, turns upon itself, something like what is seen in Poupart's ligament, and thus forms the two sides of a wedge-like pouch that is filled with cellular tissue, forming the union between the vagina and rectum—the point of the wedge being at "the central tendinous point of the perineum." Thus, we find the uterus and vagina to be a development of the triangular ligament. This view of these organs may seem far-fetched, or even gratuitous. I shall not attempt to argue the question here, but will simply state that embryology seems rather to favor this idea.

If we carefully examine the anatomical arrangements above mentioned, we will find that the true supports of the uterus are not constituted by folds of the peritoneum, but by strong fascia—that structure which passes from the vagina to the pelvic walls on either side of the same, and which is also connected with the neck of the uterus, both laterally and in front, and upon which rests the base of the bladder. The bladder is connected with the triangular ligament by cellular tissue, and with the uterus in the same manner. The so-called utero-vesical ligaments amount to absolutely nothing as supports to either organ.

It is equally true that the lateral folds of peritoneum, commonly called the broad ligaments, do not afford any support to the uterus.

These folds enclose the Fallopian tubes, the round ligaments and ligaments of the ovaries. These latter bodies are attached to the pelvic fascia by cellular tissue, just below the brim of the true pelvis, and opposite the location of the uterus. In passing from the fundus of the uterus to the pelvic wall, the peritoneum folds over the above-named structures, and meets below them as it descends to the pelvic fascia, and separates again on reaching the same. Posteriorly it covers the *cul-de-sac* of the vagina, and passes to the rectum and walls of the pelvis. The anterior layer spreads over the fascia, and ascends the walls of the pelvis anterior to the ovaries.

To recapitulate, beginning at the sub-pubic ligament: The triangular ligament—deep pelvic fascia, or anterior continuation of the pelvic fascia—passes back beneath the base of the bladder, and at the distance of two or two and a half inches unites with or forms the uterine cervix, being blended with or forming the anterior wall of the vagina, and laterally passes to the pelvic walls. From the posterior surface of the cervix, it passes backward, downward, and forward, forming the posterior vaginal wall, and unites with the recto-vesical fascia at “the tendinous point of the perineum;” the latter ascends to line the posterior wall of the pelvis.

Thus, it will be seen that the anterior wall of the vagina is strongly supported by the pelvic fascia, from its origin to its

junction with the cervix, and, further, that the cervix is lashed to the sides of the pelvis by the lateral extension of the same structure, and, that, posteriorly, only the lax, distensible, vaginal *cul-de-sac*, covered by peritoneum, projects toward the sacrum. The latter, alone, forming the so-called powerful utero-sacral ligaments.

If these statements be admitted, and they are capable of demonstration, the result must be an entire revolution in the theory of uterine support.

If, now, it be remembered that the angle formed by the vagina and uterus is about ninety degrees, or, in other words, that the axis of a normal uterus is almost at right angles with that of a normal vagina, and that the uterus lies in the axis of the pelvic inlet, it will be perceived that any force directed against the uterus would be resisted by the pelvic fascia re-inforced by the perineum, and that with a relaxed and redundant pelvic fascia, prolapse necessarily follows.

It may be thought that as I have declared the non-existence of the utero-sacral ligaments, there is nothing left to prevent the uterus from prolapsing.

Let us call to mind, however, the fact that three-fourths of the radius surrounding the uterine cervix, is occupied by the pelvic fascia. This fascia is concave above, and, therefore, when the supra-pelvic pressure is removed, it allows considerable motion to the cervical portion of the uterus, which would be prevented if the strong sacral bands existed, fixing the organ posteriorly.

Should the fundus uteri be thrown back into the hollow of the sacrum by any accidental cause, and held in that position, prolapse must follow whether there is any relaxation of the fascia or not. This is a natural deduction from the facts above stated and, I believe, has been verified by the experiments of Savage, as well as by my own observations. Savage, if I mistake not, supposed the utero-sacral ligaments to exert some influence to prevent this accident. But I am satisfied, from the laxity of the tissue and its arrangement, that it does not present a barrier.

Happily, when this accident occurs, whether in the early months of pregnancy or otherwise, all that is required is to replace the

organ, and allow the neighboring viscera to assume their natural relations.

The reposition is simple, easy and effectual.

The case is far different where the pelvic fascia is at fault. In the normal condition, the fascia is so nicely adapted to the pelvic basin, that the pressure exerted upon it by the super-imposed viscera is equally distributed and communicated to the perineal structures, which reinforce and support the fascia. If the perineum be ruptured, the fascia is overtasked, yields to the pressure, and prolapse is the result. Even without rupture of the perineum, the fascia may become relaxed and redundant, when, from the force of pressure from above, the redundant tissue will be driven in the direction of least resistance, which is unquestionably the vaginal outlet.

The above constitute the chief, if not the only, conditions under which uterine displacements occur.

The pressure to which the uterus is subjected under normal circumstances, is not such as to drive it directly toward the vaginal outlet. The force may be said to be exerted in a direction transverse to the vaginal axis. The pelvic cavity is, in reality, posterior to the abdominal cavity; and, hence, the pressure exerted by the abdominal viscera upon the pelvic contents, is a lateral pressure and not a direct one. In no case can it exceed that made upon the abdominal wall.

A force, communicated in this way, reaches the pelvic outlet, only after its direction changes the third time. The first direction being downward toward the pubic crest, the second will be in the direction thence toward the hollow of the sacrum, and the third in the longitudinal direction of the vagina, and toward its outlet. When, in practice, we attempt artificial support of the uterus, let us bear these facts in mind.

As stated before, I am aware of the fact that the anatomical points set forth in this paper, are at variance with what has been written heretofore. Such being the case, I do not expect the profession to accept these views without doubt and much close scrutiny.

It may be asked what practical benefits are to be derived from

the facts I have pointed out, even admitting my views to be true.

These have already mainly been pointed out, but may be briefly stated as follows :

First, Displacements of the uterus may occur without rupture, and with little or no stretching of its means of support. When such is the case, re-adjustment is all that is required for relief.

Second, Displacements may occur from relaxation and redundancy of the pelvic fascia, only two methods of relief seem rational or practical.

First. Reduction of pelvic pressure to its minimum, and improvement of the muscular tone of the patient after re-adjustment of the organ. This method is only hopeful, when the relaxation is both slight and recent.

Second, Surgical manipulation. Sims' operation of clytorrhaphy, as modified by Emmet.

Although the good results of this operation have been supposed to depend upon the narrowing of the vagina, they may be easily demonstrated to depend upon the reduction of the pelvic fascia, and therefore to be in strict accordance with the doctrines set forth in this paper.

Such are the views, at which I have arrived from a careful investigation of authorities, from clinical observations, and from dissections, prosecuted, I trust, solely in a spirit of scientific enquiry. I hope the humble source from which they emanate, will not bias your judgment : but that you may weigh them with deliberation and candor, and in the interest of humanity, for which you labor, and whose good, I humbly trust, will ever be your highest and fondest ambition.

A LARGE ANEURISM OF THE LEFT FEMORAL ARTERY, COMPLETELY AND PERMANENTLY CURED BY GALVANO-PUNCTURE.

By F. M. HAUCK, M. D.

On the 8th of July, 1875, I was consulted by Mr. H. Schuhmacher, a man forty years of age, who had suffered three months with a severe pain in the left knee, which, supposing it to be rheumatic, he had endeavored to combat with various domestic remedies. Two months before consulting me, he noticed a swelling about the size of a pigeon's-egg in the lower portion of the thigh of the same side, which he supposed to be due to rheumatism and treated with liniments. But, finally, as the swelling continually increased he sought medical aid.

In the middle of the left thigh, on the inner side, I found a round tumor about five inches in diameter with a furrow from above downward running out at its middle. The tumor was tense to the touch, immovable and indistinctly fluctuating; but, on the other hand, a distinct pulsation was felt, and by auscultation I could hear a strong aneurismal murmur. The patient could give no information about the cause of the tumor; but, as he was a drayman, it is probable that in loading and unloading heavy articles he received an injury that caused a rupture of one of the walls of an artery, which, however, he did not at the time perceive.

I had a consultation with Dr. A. Hammer, and we agreed to attempt a cure by compression. On the next day, Dr. Hammer left the city, because of his failing health, hence he could not follow the case farther with me. I had G. Spackler make a horse-shoe-shaped compressorium furnished at one end with a pad and strong screw. When I applied the instrument, the compression was good, and the pulsation and murmur diminished; but, in spite of all kinds of bandages and the patience and attentiveness of the patient, it was impossible to keep the pad in place, and, after still repeated and futile attempts, I laid the instrument

aside. I then tried digital compression, employing three strong, intelligent men who relieved each other every half-hour for eighteen hours. This appeared to exert a favorable influence, all the symptoms abating somewhat; but it soon became evident that complete coagulation had not taken place. A few days afterward, Dr. Greiner saw the case with me and we concluded to try galvano-puncture. Drs. Hermann and Lingenfelder agreed with us in consultation, and brought an excellent apparatus of their own to the place. We had not neglected to consider other means: and, especially, the patient was too low and emaciated to stand the operation for ligature of the artery.

July 28th, we tried the action of the poles on albumen, and found, contrary to the views of distinguished authorities (Althaus and others) in this branch of medicine, that the negative pole is the most efficient, since around the needle connected with this pole the coagulation was more speedy and abundant than around the positive pole.*

I now inserted three platinum needles half an inch from each other into one side of the sack, to the depth of two inches, and connected them with the negative pole, completing the circuit by attaching the positive pole to a metallic plate placed above, or moved about the surface of the tumor. The constant current was employed twenty minutes. On withdrawing the needles I remarked considerable resistance, indicating that a coagulum had formed around them. In fact, two days afterward, when the tumor had become softer, we could feel three firm masses, each the size of a pigeon's-egg. Two of these masses appeared to be adherent to the wall; the third fluctuated in the yet fluid blood. The pulsation and murmur were decidedly less. A not inconsiderable inflammation set in around the punctures, not, however, accompanied with much pain. Five days after the first sitting,

* Beard and Rockwell say the coagulum at the positive pole is small, black and hard, that at the negative being larger, softer, and of a yellowish color; and they use a large number of insulated needles with both poles, thereby reducing the resistance, time, pain, liability to blistering, and the strength of current necessary, and increasing the clot. In the case reported by Dr. Hauck, the needles, though warranted, were imperfectly insulated, and a circumscribed redness from the previous treatment, is said to have been visible on the surface of the tumor before the electrolytic treatment was begun.—[D. V. D.]

we tried the same procedure, except that I thrust the needles into the other side of the tumor. Eighteen hours afterward, no pulsation or murmur could be detected, but again inflammation of the skin existed, the patient complaining this time of very severe pain. We ordered ice-poultices, which were, perhaps, too energetically applied by his wife who took care of him, and the next morning I found a round spot, two and a half inches in diameter, at the summit of the tumor, very suspiciously red. I tried, with diluted carbolic acid, to prevent the threatened gangrene of the skin, but without success, for after a few days all that portion of skin sloughed away. I then hoped something from the resistibility of the fascia; but this and the covering of the tumor shared the fate of the integument, and there lay before me a firm dark-brown coagulum, over which was stretched the saphenous nerve. It was this nerve which had caused the furrow mentioned above, and which, constantly stretched by the large, hard, round mass of blood, had caused the pain in the knee. It remained a few days, when it also broke away. As the coagulum lay thus exposed, I began gradually to remove it. With a small, round spoon, I removed about three ounces a day, but very cautiously, for as I came near the wall of the sack I had to arrest light hæmorrhages with ice-water. The resulting cavity, after careful cleansing with soap-suds, was filled with charpie-balls dipped in a solution of salicylic acid. I continued this treatment six days, when the opening had become so large, from retraction of the skin in every direction, that I could, with considerable ease, introduce the hand and explore with the fingers. I found cavities over the flexors, under the extensors, and between the adductors. Having now become bolder, I removed the coagulum in all directions. I cannot better compare this procedure than with that of separating an adherent placenta. I regret that I did not weigh the coagulum; but I am satisfied that it did not amount to less than two pounds.

The patient suffered for weeks with loss of appetite, dyspepsia, sleeplessness and great weakness, induced partly by the now existing copious suppuration, partly, also, by malarial influences. When, besides, a very penetrating odor was diffused by the char-

pie-balls, despite the salicylic acid, during the changing of the dressings, and night-chills were reported to me, the spectre of threatened septicaemia may well have stalked before me; but all went well, as the patient, under the use of quinine, pepsin-wine, etc., began to convalesce, and, with the commencement of vigorous granulations, the great cavity lessened slowly in size, and on the 25th of September, I committed the dressing to the patient himself. Four weeks ago (about the end of January, 1876), the healing was complete: and there now remain, of his wretched troubles, only a small, deep contracted scar, a slight stiffness of the knee, and a slightly marked anaesthesia of the inner side of the knee and lower portion of the thigh. The patient has gone for the past eight weeks without a cane, and is perfectly satisfied with the cure, as, I think, his physician may be too.

No. 514 Lafayette Street, St. Louis, February 21st.

Proceedings.

ST. LOUIS MEDICAL SOCIETY.

St. Louis, February 12, 1876.

The Society was called to order by the President.

Dr. McPheeters called for the reading of a communication from Dr. Billings, of the Surgeon General's office, asking for the support of the medical profession of Missouri, in securing the continuation of the annual appropriation of \$10,000, for the benefit of the Army Medical Museum and Library. Resolutions in favor of this appropriation were passed, and ordered to be presented to each of the Senators and Representatives in Congress, for the State of Missouri.

Dr. Prewitt asked attention to the report of Dr. Howard Marsh.

of London, of a case of intussusception in a child seven months old, in which laparotomy had been performed successfully. Dr. Prewitt said the weight of authority was against the operation, but held that the same law was applicable here as in hernia—that when the proper means had been used, and reduction not accomplished, it was best to operate. Mr. Hutchinson's case of laparotomy in a child six months old, followed by death, was also quoted.

Dr. McPheeters believed with Dr. Prewitt, that where other means had failed, an operation may save life. He also referred to a recent paper by Dr. Flint, in which was reported a number of cases of dysentery treated by a placebo. He opposed the statement that dysentery was a self-limiting disease, and thought the average period of duration in the cases mentioned—fourteen days, was a longer one than usual.

Dr. Montgomery mentioned a case of intussusception which he had seen with Dr. Gregory. The patient was a boy nine years old, and the symptoms were unmistakable. He died in four days.

Dr. Wm. Johnston said a great hindrance to operation, was the difficulty of diagnosis in such cases. He reported several cases of measles in which the period of incubation was five, six or more days. In one of them broncho-pneumonia, dysentery, and an eruption of boils followed. He advised expectant treatment.

Dr. Newman thought that in many cases of measles there was some complication which gave rise to the conditions mentioned by Dr. Johnston. In intussusception, he favored what had been said with regard to operative treatment.

ST. LOUIS, February 19, 1876.

Society met, and in the absence of the President and Vice-President, Dr. Wm. Johnston was called to the chair.

Dr. Geo. H. Knapp, 3117 Washington Avenue, was unanimously elected an associate member.

Dr. Fairbrother introduced the subject of tape-worm, and

spoke of several cases he had. Had used turpentine, filix mas and kouso, without complete success in any case.

Dr. Borek spoke of the efficacy of the internal administration of chloroform, followed by croton oil.

Dr. Hodgen reported a case of dislocation of the astragalus forward. It was separated from its articulations with the os calcis, and with the tibia and fibula, and was one and one-fourth inches in front of the normal position. It slipped back easily, and little or no inflammation followed.

Dr. Wm. Porter presented a new method of making rhynoscopic examinations, found in a recent number of *The British Medical Journal*. The end of a small rubber cord was passed with a suitable instrument, along each nostril, behind the soft palate, and then brought forward out of the mouth. By making tension on the ends protruding from the mouth, the soft palate can be readily drawn forward. The rubber cord does not irritate the parts as a metal instrument does. By this means he had been able to introduce a mirror of an inch in diameter behind the velum.

Dr. Rumbold had devised an instrument for this purpose, to be passed through the nostril, acting as a lever to press the velum forward, but favored the rubber cord.

Dr. Borek reported fracture of the femur in a child seven years old, who formerly had talipes equinus well marked. When the splint was adjusted, care was taken to bring down the heel as far as possible. Recovery followed slowly, and when the child was able to walk, the talipes had almost disappeared.

Dr. Laidley reported a case in practice. A lady fifty-three years old, had pain about the abdomen, and stereoraceous vomiting. The second morning there was great pain in the right iliac region, and there being evidence of obstruction, an injection of water was given, and afterwards of sweet oil. The vomiting still kept up, and for ten days, there was great tympanitis, then there was an evacuation, and shreds of mucous membrane and blood came away. For twenty-seven days more there was no action of the bowels. Belladonna, strychnia and electricity, were employed without effect. Morphia was used freely to relieve the

pain. Thirty-seven days from the first, there was a slight discharge of fecal matter, followed by normal evacuations. The patient is now quite well. He would not be certain about the diagnosis.

Dr. Wm. Johnston thought it was a case of obstinate constipation.

ST. LOUIS, February 26, 1876.

The Society was called to order by the President. In the absence of the Recording Secretary, Dr. Laidley was elected Secretary, *pro tem*.

Dr. T. E. Holland, Assistant Physician to the City Hospital, was unanimously elected an associate member.

Dr. Prewitt read a paper on Transfusion, giving its history, and describing the various instruments used.

Dr. Steele said the practical question was, how can transfusion best be accomplished. Thought that the instrument exhibited by Dr. Moore, at the last meeting of the American Medical Association, answered fully the wants of the profession. The Doctor claimed for it safety, simplicity and efficacy.

Dr. Scott regreted that a description of the instrument, presented by Dr. Moore to the American Medical Association, was not to be found in its annual report.

ST. LOUIS, March 4, 1876.

Society convened, the President in the chair.

Dr. Wm. Johnston reported a case of malignant puerperal fever, resulting in death. Among the symptoms, were pain about the abdomen, fever and great heat within the vaginal walls. Vomiting was constant and the ejected material was very dark towards the last. The placenta was softer than usual. The child seemed healthy when born, but died in forty-eight hours. It doubtless had been poisoned before separation from the mother.

Dr. J. M. Scott mentioned a case of atrophy occurring in a

young child. It was small when born, but seemed healthy for the first few months. Then it began to waste, and a few days before death there was an eruption of small vesicles filled with blood, and slightly raised. The child before this one was small, and two others have died in an anemic condition.

ST. LOUIS, March 11, 1876.

Society called to order at the usual hour.

Dr. Gratz A. Moses was elected an associate member by a unanimous vote.

Dr. Fairbrother referred to displacements following fracture of the tibia. He reported three cases which had been treated by a plaster-of-Paris splint, made like a stirrup, and applied to the limb. After the splint had been removed, there had been over-riding of the upper fragment. He thought from observation that fully one-half of the cases of fractured tibia would show some deformity at seat of fracture, at the end of the first year. He explained how the stirrup could be easily adjusted and kept in position.

Dr. Steele gave some reasons why there might be displacement after fracture of the tibia. 1st. the action of the quadriceps extensor muscle tends to draw the upper fragment forward: 2d. the heel is not always well supported, and bending down, an angle is formed at the place of fracture: and 3d. in many instances the patient is allowed to walk too soon.

Dr. Wm. Johnston thought it was best to wait till the swelling had gone down, before the splint was applied.

Dr. Wesseler said the old fracture box, with bran, and bran bags, answered every purpose in fractured tibia.

Dr. Keuckellian thought the case reported by Dr. Wm. Johnston at the last meeting, was a case of blood poisoning, and mentioned a similar case in his own practice. The poison is not a new material introduced into the blood, but is the decomposing elements of the blood itself. He spoke of the difference in the ratio of the pulse to the temperature in such cases as an indication of great danger.

Dr. Fairbrother had sometimes noticed a high temperature where the pulse was comparatively low. He always made a grave prognosis where this condition existed.

ST. LOUIS, March 18, 1876.

The Society met as usual.

Dr. C. D. Owens, a former associate member, having removed from the city and becoming a corresponding member, asked to be re-instated an associate member, as he had returned to the city. On motion the request was granted.

Dr. Dickinson reported two cases of displaced, or (as Dr. Gregory suggested) *misplaced* lens. The first was a young woman in whom the lens was directly above the normal position. She had myopia, requiring a glass of eleven inches. The edge of the lens could be seen sharply defined and crescentic. The second case was a child six years old, the lens being displaced to the inside.

Dr. Gregory said that some time ago, he had read a paper by Dr. Otis, insisting that strictures occur frequently in the penile portion of the urethra. In a case he had recently seen with Dr. Wessler, there had been symptoms of calculus for several years. The meatus was narrow, and the stream of urine had been small from boyhood. With a blunt knife the meatus was divided, and a large catheter passed into the bladder, and instructions given to pass it every day. The troublesome symptoms have since disappeared. Since reading the article referred to, he has operated in this way three times with good effect. No doubt the urine retained behind the stricture, irritated the mucous membrane, and gave rise to spasm and pain.

Dr. Bryson had operated several times in such cases, and favored the treatment. He reported several cases to show that hernia in children might be produced by straining at micturition where a narrow prepuce existed. He thought from observation in the dissecting room, that the inguinal canal was comparatively larger and more distensible in the child than in the adult.

Dr. Hart had found narrowing of the meatus in a number of cases, and used a conical bougie to dilate the passage. Thought the narrowing was frequently due to inflammation. Elongation of the prepuce was very common in the colored race, and though in most of the cases it was congenital, yet he had seldom seen hernia in the negro.

Dr. Hill called attention to the satisfactory result he had had in the treatment of acute rheumatism with salicylic acid, and reported several cases in illustration.

Dr. Love had used salicylic acid in chronic rheumatism, with good effect.

Dr. Gregory used bi-tartrate of soda as a solvent for salicylic acid.

Dr. Wm. Johnston advocated tonic treatment in rheumatism.

ST. LOUIS, March 25, 1876.

The Society was called to order by the President.

Dr. Justin Steer was elected as associate member.

Dr. Hurt presented a section of bowel from a man who had died at the City Hospital, which was found to be intussuscepted. The patient for three weeks before admission had had chills and fever. Entered the Hospital March 10, on account of pain about the ileo-cæcal valve and vomiting. The temperature in the afternoon was 104° F. His tongue was dry, and he had some diarrhœa. The vomiting was relieved and he did well till the 19th. He then looked anxious, his abdomen was tympanitic, and he complained of pain. His bowels were moved occasionally, the last time two hours before death. A post-mortem examination revealed the intussuscepted bowel.

Dr. Prewitt said when the lower bowel became emptied, it was unusual in intussusception to have any further discharge per rectum except a little blood and mucus. The higher the difficulty was, the greater the vomiting would be, and the lower, the more straining, as a rule. He also reported the following cases. Eighteen months ago he had treated a lady who was pale and weak,

but who improved, and six months since became pregnant—two months ago he found her flooding. She was relieved, but a month after she had great pain, and passed a mass six inches long, rough on one side, and smooth on the other, supposed to be a fibrinous clot, which had been retained since the first flooding. Abortion soon followed. The foetus lived for some hours.

Another case he had seen was a woman in the fifth month of gestation who was miscarrying. The mother had aborted five times in four years. The parents were both healthy in appearance. The placenta—which was shown—was fatty-looking, pale and anæmic. One of the causes of fatty placenta is syphilis, and in spite of the history, he would put both father and mother on specific treatment. As the placenta is part of the foetus, the taint may be in either of the parents. There was no signs of syphilis in the foetus, but children may not show symptoms of the inherited disease for nine or ten years. Cases in corroboration of the latter statement were cited by Drs. Dickenson and Thos. Scott.

Dr. Wm. Johnston believed that syphilis caused abortion in exceptional cases only, and that the symptoms of syphilis were not likely to appear for the first time in a child ten years old, who had inherited it.

Dr. Faber mentioned two cases of abortion caused, he thought, by malaria.

Dr. Hurt—Local evidences of syphilis are generally accompanied by constitutional disturbance. Syphilis, beyond a doubt, is a fruitful cause of abortion, and the greater number of cases of pregnancy affected by the poison do not reach full term.

Dr. Kennard reported the case of a gentleman who had been previously in good health, but on account of some constipation, had taken some "anti-malarial" nostrum. Salivation followed, with symptoms of tetanus. The offensive odor had been corrected by the use of a chlorate of potassa wash, but the jaws still remained firmly locked. Chloral and the bimeconate of morphia had produced no amendment.

Dr. Wm. Porter recalled the discussion which had followed the reading of a paper on "Nasal Catarrh," at a former meeting, in

which he asserted the curability of this disease. In proof of the assertion he presented the notes of five cases which had existed from five to fifteen years. They, with others, had yielded to treatment, and he was more than ever assured that care and perseverance would conquer the worst cases.

Reviews and Bibliographical Notices.

OPIMUM EATING. An Autobiographical Sketch, by an Habituate. Philadelphia: Claxton, Rensen & Haffelfinger.

This is a malapropos wail over the horrors of Andersonville, containing also the experience of "one more unfortunate" victim of the baneful opium habit.

The title of the book from its contents might as appropriately have been, The horrors of Andersonville Prison by an Habituate, as the title given.

Nothing new is given in the book in regard to the pernicious habit of eating opium, and much, already known, of the fatal effects of the terrible vice, whose blighting influence has overshadowed so many hearthstones, and blasted so many hearts, and hopes and homes.

The book is glaringly defective in statistical information and detail of this terrible habit and its deplorable consequences, so necessary to give such a book value: and the evil effects of the vice are neither so vividly nor forcibly portrayed as in the confessions of De Quincey or the writings of Coleridge.

The author seems to possess that temperament to which opium is not generally congenial, and out of which confirmed opium eaters are seldom made.

The drug sickened him at the stomach, and the first doses taken subcutaneously, to avoid the nausea when taken *per os*, produced a general bad effect.

It was his "experience straight along" that for every stimulation he had "a corresponding depression, an attending sickishness," and "the general tenor of the stimulation was to produce melancholy."

The author describes his unsuccessful attempt to abandon the habit thus :

"I was but a couple of years deep in opium, nevertheless the habit was firmly fastened. The manacles were beyond the strength of my slender constitution even then." "After doing without opium thirty hours the serious pains began." During the most of the day he sat in a dejected state, a prey to the most trying melancholy.

This is the usual experience of those who attempt the almost hopeless task of self-reformation outside of institutions for their cure.

Our author continues : "Up to that date my feelings were not so frozen but that I could weep, and I had not yet been forced, as I since have been, to cry with Hamlet, the noble Dane, 'Oh ! that this too solid flesh would melt, thaw and dissolve itself into a dew.' During this attempt, as during all near that time (I have since made none) weeping would come upon me by floods."

The style of the author throughout the book is not so labored as the above extract, though confessedly written under the incubus of opium. ;

The writer is to be commiserated on his failure to free himself from the thralldom of this baneful habit. As usual with these victims, he fell into the hands of an empiric who substituted one form and manner of opium for another. "His physician gave him hypodermically a clear and colorless fluid," "no opium nor morphia. One of the simplest and most harmless things in the world"—"a secret which no one knew anything about but himself." One of those infallible cures which are performed in an incredibly short space of time was promised, though the actual time for a real cure in scientific hands need not have been very long.

He endeavored to discontinue the curative (?) treatment but

found himself in the fangs of a monster more terrible than the Hydra of Lake Lerna.

The book is valueless to the physician and may do much harm to those who are slaves to the author's unconquered vice, because of the author's ignorance of the resources of the profession in eradicating this evil and restoring the shattered nervous system of its victims, to its former healthy tone.

It may do some good however in "warning others that they come not into this torment" for, concerning the dire consequences of opium intemperance, one-tenth of the truth has not yet been told.

C. H. H.

Books and Pamphlets Received.

TRANSACTIONS OF THE ECLECTIC MEDICAL SOCIETY OF THE STATE OF NEW YORK, 1875. Albany: Weed, Parsons & Co., Printers.

VITAL MOTION AS A MODE OF PHYSICAL MOTION. By Charles Bland Radcliffe. London: Macmillan & Co., 1876.

ON STETHOMETRY. Also an Appendix on the Chemical and Microscopical Examination of Respired Air. By Arthur Ransome, M. D., M. A., (Cantab). With Illustrations. London: Macmillan & Co., 1876.

TRANSACTIONS OF THE TEXAS STATE MEDICAL ASSOCIATION. Columbus, Texas, 1875.

NEW JERSEY MEDICAL SOCIETY. Transactions from 1766 to 1800.

ON THE ADMINISTRATION OF DIGITALIS IN THE WEAK HEART OF CONTINUED FEVER. BY E. T. Easley, A. M., M. D., Little Rock.

TRANSACTIONS OF THE THIRTIETH ANNUAL MEETING OF THE
OHIO STATE MEDICAL SOCIETY, 1875.

IMMOBILITY OR CLOSURE OF THE JAW. With report of cases.
By W. F. Westmoreland, M. D., Atlanta, Geo.

URINARY CALCULUS. A Synopsis of thirty-seven cases, treated
by W. F. Westmoreland, M. D., Atlanta, Geo.

MEDICO-LEGAL EVIDENCE OF INDEPENDENT LIFE IN A NEW-
BORN CHILD. By J. B. Gaston, M. D., of Montgomery, Ala.

FILTH DISEASES AND THEIR PREVENTION. By John Simon, M.
D., F. R. C. S. Boston: James Campbell, 1876.

THE WEST RIDING LUNATIC ASYLUM MEDICAL REPORTS. Ed-
ited by J. Crichton Brown, M. D., M. R. S. London: Smith
Elder & Co., 15 Waterloo Place. Price, 8s.6d. 1875.

INSANITY IN ITS MEDICO-LEGAL RELATIONS. By A. C. Cow-
perthwait, A. M., M. D. Philadelphia: J. M. Stoddart &
Co., 723 Chestnut St. 1876.

FIRST REPORT OF THE SALEM HOSPITAL, May.

DETERMINATION OF THE REFRACTION OF THE EYE WITH THE OPH-
THALMOSCOPE. By E. G. Loring, M. D. New York: Wm.
Wood & Co., Publishers.

PHYSICIAN'S COMBINED CALL-BOOK AND TABLET. By Ralph
Walsh, M. D., Washington, D. C.

(For sale by Gray, Baker & Co.)

CLINICAL LECTURES ON DISEASES OF THE HEART AND AORTA.
By George William Balfour, M. D., St. And., F. R. C. P.
Ed. Philadelphia: Lindsay & Blakiston, 1876.

(For sale by Gray, Baker & Co.)

A MANUAL OF THE DISEASES OF THE EYE. By C. Macnamara,
F. C. U. Third Edition, 12mo., pp. 614. Philadelphia,
Pa. 1876.

(For sale by Gray, Baker & Co.)

THE STUDENT'S GUIDE TO THE PRACTICE OF MIDWIFERY. By D. Lloyd Robertson, M. D., M. R. C. P., Lond. 12mo. pp. 317. Philadelphia: Lindsay & Blakiston, 1876.

(For sale by Gray, Baker & Co.)

ZELL'S POPULAR ENCYCLOPEDIA AND UNIVERSAL DICTIONARY. Numbers 5, 6, 7 and 8, are received. J. W. Marsh, general agent, St. Louis, Mo.

Another installment of this excellent work is received, No. 5 being embellished with an elegant map in colors of Palestine. The illustrations are numerous, well conceived and of superior workmanship. The work completed will be a most comprehensive epitome of the known and knowable.

CORRECTION.

THE BODY AND ITS AILMENTS. By Geo. H. Napheys, A. M., M. D., is not for sale by the book stores, as stated in our March issue but is sold on subscription only.

Extracts from Current Medical Literature.

Physiological Action of Alcohol.

Dr. T. Lauder Brunton, contributes an interesting article in the *London Practitioner*, February number, on this subject, the chief points of which are:

1. Alcohol, in small quantities, increases the secretion of gastric juice and the movements of the stomach, and thus aids digestion. Although unnecessary in health, it is useful in exhaustion and debility.
2. It increases the force and frequency of the pulse, by acting reflexly through the nerves of the stomach.
3. In large doses it impairs digestion by over-irritating the stomach.

4. It may produce death reflexly by shock.

5. After absorption into the blood, it lessens the oxidizing power of the red blood corpuscles. This property renders it useful in reducing temperature; when constantly or very frequently present in the blood, it causes accumulation of fat, and fatty degeneration of organs.

6. It undergoes combustion in the body, maintains or increases the body weight, and prolongs life on an insufficient diet. It is therefore entitled to be reckoned as a food.

7. If large doses are taken, part of it is excreted unchanged.

8. It dilates the blood-vessels, increases the force and frequency of the heart by its action on the nervous centres to which it is conveyed by the blood, imparts a feeling of comfort, and facilitates bodily and mental labor. It does not give additional strength, but merely enables a man to draw upon his reserve energy. It may thus give assistance in a single effort, but not in prolonged exertions.

9. The same is the case with the heart; but in disease alcohol frequently slows instead of quickening the pulsations of this organ, and thus economizes instead of expending its reserve energy.

10. By dilating the vessels of the skin, alcohol warms the surface at the expense of the internal organs. It is thus injurious when taken during exposure to cold, but beneficial when taken after the exposure is over, as it tends to prevent congestion of internal organs.

11. The symptoms of intoxication are due to paralysis of the nervous system; the cerebrum and cerebellum being first affected, then the cord, and lastly the medulla oblongata. It is through paralysis of the medulla that alcohol usually causes death.

12. The apparent immunity which drunken men enjoy from the usual effects of serious accidents is due to paralysis of the nervous mechanism, through which shock would be produced in a sober condition.

Editorial.

THE STATE BOARD QUESTION.

As the time for the meeting of the Missouri State Medical Association approaches, we are reminded that if anything is to be done in the interest of a State Board, it should originate in that body.

Since the way into the medical profession has been made so broad and easy, and the enticements so alluring, neither price nor brains being longer required; the high-ways and by-ways strewn with tinted *circulars*, to catch the attention of the way-farer and induce him to enter upon this easy way to fame and fortune: the annual outpouring of doctors is as confidently anticipated, as seed time and harvest. They come like prospecting miners, searching for a "lead" that will pay to work or watch. It requires but a slight knowledge of the state of the profession to be convinced, that no vacancy—or near prospect of one—exists in city, village, cross roads or country: no, nor westward on this continent to the setting sun. This fact can no longer be denied by the school men themselves.

Neither is it difficult to see how this comes to be, since with the unnecessary multiplication of medical schools comes sharp competition, and its disgraceful accompaniments: the show of a class must be made, even if they have to be all "beneficiaries" without the least claim to preparation or qualification for the profession. And this crude material is to be *re-cast* into doctors in the brief space of time it took their mothers to mold them into being, and some of them seem to know about as much of what is in store for them as physicians, as infants may be supposed to know of their future trials in life. We are called hard names for exposing the fact that the materials collected and used as mere scaffolding by ambitious men to *help themselves* up in the temple of medicine, is being by them made an integral part of the temple itself. Both

the medical press and the well-informed physicians have refrained from exposing the ruinous and disgraceful advertising schemes practiced and licensed in *high places*, hoping for correction and reformation from *within the profession*, until it became evident to all, that we were rapidly descending from bad to worse, the body having proved itself powerless to remedy existing evils after numerous ineffectual efforts. Hence the members of the profession who *do care* for its future, and who acknowledge a duty to the profession and to posterity, are appealed to, by the facts to lend their aid, and in some efficient way to correct the abuses now so patent to all men.

The time was when the medical school sought men *already at the front* in scientific acquirements, in wisdom and aptness to teach, practitioners of experience and acknowledged skill. The school advertised such teachers for *its* benefit. How changed when the school is organized and run to *advertise the men* who conduct it. Yet such is the modern invention so popular with men who make haste to be reputed great, and which has so evidently demoralized the profession. Not that these men cannot teach, so much as that they create unnecessary uncalled for schools, each of which must have a class, if the teaching should be entirely free; *free education* is doubtless a good thing, but is it educating to lecture to men three or four months in an almost unknown tongue, then mock them with a solemn farce in which they are *pronounced doctors*; how much better or wiser are they for having been "stock" a short time, for a few star performers, who monopolize the applause and pay?

For several years the conviction has been general both with the profession and people, that our medical schools were turning out too many but partially educated doctors.

That the general law of supply and demand will finally regulate this thing is not true: all experience having shown quite the reverse to be true, *i. e.*, the better article is quite crowded out of the market because it can't be produced cheap enough to compete with the shams and cheats the public are cunningly inveigled into patronizing; such is the nature of the case that the public cannot judge of the qualifications of a doctor as they judge of

the quality of a piece of goods, or other workmanship. The title M. D. is just as good, obtained by an ignoramus from an inferior college, so far as the public are concerned, as that obtained by a competent man from the best institution. That "there is room in the front rank of medical men," is a palpable fallacy: to use a homely but expressive phrase "it has played out."

In the other learned professions where transcendent eloquence, or profound learning, may be displayed in the pulpit or at the bar room in front may be found or made: but in medicine the men really at the front, in science and merit, are often rudely forced back in point of business and social position to want and obscurity, by the less worthy and less talented, through their diabolical schemes of advertising and unblushing effrontery in blowing their own bugle until they succeed to business, when they claim to occupy the front, to have achieved: while their lives, viewed from any honorable standpoint, are miserable failures, a deliberate "bartering of their birth-right for a mess of pottage."

This class, together with those engaged in the school advertising scheme, which tends to degrade and injure every member of the profession except themselves, are getting well nigh entire possession of the front ranks, so it may not be longer said, "there is room higher up," for honest men at least. Hence to the question, who is front? comes the answer, he who is best advertised. Neither can we appreciate the good will in the offer of beneficiareries to the young men enticed thereby to attend medical lectures, and enter a profession so crowded already, that they must pass the best of their youth in waiting and watching for business in penury and painful suspense, until forced into some other employment to get bread.

We would not be understood as objecting to low fees for medical teaching, or no fees (as in the case of our public High Schools, Normal Schools, etc.), if a fair standard of preparatory education for a professional life were required of the matriculant.

Experience in the old world, and reason in the new, alike confirm the wisdom of placing a guard at the entrance of the profession. Nearly every *untrammelled* medical journal, and many medical societies have discussed the subject of ascertaining

the qualifications of those who embark in the practice of medicine, during the past year or two, and with singular unanimity the verdict has been in favor of a *state board*, the only difference of opinion being in the manner of its appointment. Surely if the need of a state board is so pressing, the best way to appoint it, can and should be discovered. If the first working should not prove to be *perfect*—like other great reforms—alterations or additions may follow, as experience shows the better way; until a law is obtained, a scheme perfected, which shall give reasonable protection to the people, and secure to the profession in this country the social status enjoyed by it in all other civilized countries.

In looking over the history of legislation on this subject, we cannot avoid the conviction that a large majority of the laws passed heretofore, have been framed by parties *opposed* to *any* law on the subject; parties who were interested to *defeat* such legislation as might prove effective.

We hear a great deal of superlative nonsense about mixing politics with medicine; that you can't go into the Legislature for a law without getting in return a batch of politicians appointed who may be wholly incompetent; that the Governor of the State could not be trusted to nominate, nor the Senate trusted to confirm; as in the case of appointing other state officers; that he might nominate Homœopaths or Eclectics, etc.; forgetting, it would appear, that the Governor has a reputation for intelligence and justice to maintain—if for no other reason, that he may be United States Senator some day. Others object to appointment by the State Medical Association, because that body may be composed of half a dozen factions, more or less, who are at swords' points with each other in their rivalries, and that there would be electioneering to get friends of their several enterprises on the board, rather than good and competent men.

Again, that a law conferring the appointing power on the State Medical Society would meet with determined opposition by the Homœopaths and Eclectics, hence could not be passed.

It has been suggested that the *Supreme Court* would be an accepted authority to make the appointment, being further re-

moved from the fluctuations and changes incident to popular legislation, in which we heartily concur, if a law can be so framed under our Constitution.

What we need is an *honest purpose to have a wise law*.

Having set about the work in earnest, we may compare and modify our views, in the true spirit of compromise, until we have simplified and perfected a law that may remedy existing evils in a good degree, if not accomplish all that may be desired.

We trust the extreme importance of this subject will be a sufficient apology for the republication of the form of a law embodied in an address at the meeting of medical editors last year, with some slight alterations suggested by the general discussion of the subject since that time. We here submit for the careful review by such of our readers as may feel interested in the subject, the following form of a law :

An act for the Better Regulation of the Practice of Medicine and Surgery in the State of Missouri.

SECTION 1. Be it enacted by the people of the State of Missouri, represented in the General Assembly, that a board of medical examiners shall be constituted, composed of members residing in the State, who shall be graduates of some chartered medical college, men distinguished for their acquirements and ability in the medical profession.

SEC. 2. Their term of office shall be six years, and until their successors shall have been appointed and duly qualified. The board shall consist of five members, three of whom shall constitute a quorum to transact business.

SEC. 3. The examining board shall hold two sessions in each year, one commencing on the first Tuesday of March, and the other on the first Thursday of October. They shall remain in session from day to day until all applicants who present themselves shall have been examined. Place of meeting, St. Louis. It is further provided that a majority of the board may attend and participate in the examination of the candidates for graduation in the several medical schools in the State, and confer the State certificate on all worthy and competent applicants for license to practice in the State of Missouri.

SEC. 4. The examining board shall be nominated by the Governor, and confirmed by the Senate.

SEC. 5. Any person proposing to engage in the practice of medicine or surgery, or any branch thereof, in the State of Missouri, shall make a written application to the board, asking examination at the first sitting or convenience of said board.

SEC. 6. It shall be the duty of the applicant to transmit with his application, a fee of twenty dollars. It shall be lawful for any applicant, after having filed his application with the board, and their acknowledgement with the county clerk of the county in which he proposes to practice the medical profession, to engage therein at once, in said county, but not elsewhere, until after his examination.

SEC. 7. Should the said applicant fail to present himself for examination at the appointed time, or fail to receive the sanction of the board, he shall have no legal claim to fees or compensation for services rendered prior to his examination, and shall cease immediately thereafter, from the practice of the medical profession in said State.

SEC. 8. It shall be the duty of the board of examiners, carefully and faithfully to examine each candidate for license, on the sciences of anatomy, chemistry, physiology, surgery, materia medica, obstetrics, pathology, etiology and diagnosis, omitting the customary examination on therapeutics on the *modus operandi* of medicines: to grant license to such only as have sustained a satisfactory examination: and all examinations shall be conducted in the presence of a quorum of the board.

SEC. 9. All persons who may engage in the practice of medicine or surgery, or any branch thereof, in violation of this act, shall not be entitled to collect any compensation. Any party charged with the violation of this act, may be arraigned before a justice court, and, on conviction, be fined fifty dollars for each and every offense.

SEC. 10. The board of examiners shall elect yearly one of their number to perform the duties of secretary and treasurer, whose duty it shall be to keep a faithful record of the proceedings of the board, and after paying the necessary expenses attending the sittings of the board, including cost of certificates, pay the balance into the State Treasury.

SEC. 11. The certificate shall be drawn on parchment, signed by the members of the board, and countersigned by the Governor and Secretary of State, with the seal of the State attached.

SEC. 12. Each member of the board shall receive, when on duty, ten dollars a day, to be paid by the treasurer of the board as required, from fees received.

SEC. 13. That physicians and surgeons practicing in this State, at the time of the passage of the act, shall not be required to undergo an examination and procure a certificate as above provided.

The form of a *Bill* here presented is believed to indicate the principles to be embodied in an act, on this subject: rather than all the provisions in detail, which may be necessary or desirable, to carry out, in the most efficient manner, those principles. Where so various and conflicting views are entertained, the spirit of compromise must be largely indulged.

Objection to a state board has been urged in some quarters on account of its interference with "vested rights;" the charters of schools conferring the right to grant diplomas to practice; and yet, if some of the parties who hold these rights confer degrees on persons who have never attended their schools, and who are utterly unworthy and incompetent to practice medicine, as we have good reason to believe is the case, in regard to at least *two* of the schools in the State of Missouri, have the people no means of redress? Most certainly the Legislature has the power to set up new safeguards, and see to it that the degree is only conferred on proper persons. Will it be insisted that the State has invested anybody with the right to certify to fraud? Of course all who prove themselves competent before the board will be passed, thus confirming or endorsing the action of the school. The state board would only expose the frauds attempted under existing charters, while it affirmed the honest work.

Again, it is asserted that some of our best educated men in the profession are unsuccessful practitioners, and contrariwise that the poorest scholar may be a good practitioner, all of which may be true as *exceptions*: while it suggests, no doubt, the fact

that the best instructed are the best practitioners as a rule. As to the practicability of ascertaining what a man knows by his answers to questions, oral and written, it is the accepted and trusted way the world over, and ever has been, and we fail to appreciate the reason why medical knowledge should be an exception; indeed, the medical staff of the United States army is a success, selected by a medical board. An obvious benefit of such a board would be to detain young men in literary institutions until better prepared to commence the study of medicine: the fact that a written examination is required by the board would turn hundreds away from the study of medicine who are uneducated, while it would invite good scholars to our profession. With the examining board, we are indifferent as to any preliminary examination to matriculate at a medical college. No man who expected to practice in the State of Missouri would commence the study of medicine until he was assured that his preliminary education was sufficient to pass the written examination of the board.

Also this board would scare away from the State the incompetent from the schools of other States. If it is said this would interfere with immigration to the State, so be it: poor, non-producers, pretenders to knowledge they do not possess; to turn *such* away from the State can be no great loss. Certainly the present overstock of doctors is a guarantee against a short supply the next decade, by which time our literary institutions may supply young men better prepared to enter our medical schools.

E.

Medical Meetings.

THE MISSOURI STATE MEDICAL ASSOCIATION.

The Annual Meeting of the Association will be held in St. Louis, commencing on Tuesday, April the 18th, 1876, at 10 A. M., in the Hall of the School Directory, Polytechnic Building, Southwest corner of Seventh and Chestnut streets. It is hoped that all District Medical Society will send their complement of delegates, and that a full attendance of associate members will

be present. Members of the profession throughout the State, and those from abroad will be most cordially greeted.

Any further information may be obtained from either of the undersigned, : J. S. B. Alleyne, M. D., E. Montgomery, M. D., H. N. Spencer, M. D., Committee of Arrangements.

RAILROAD FARE REDUCED.

On the Missouri Pacific and Atlantic & Pacific Railroads, round trip tickets to Delegates for *a fare and a fifth*.

AMERICAN MEDICAL ASSOCIATION.

The Twenty-Seventh Annual Session will be held in the city of Philadelphia, Pa., on Tuesday, June 6, 1876, at 11 A. M.

“The delegates shall receive their appointment from permanently organized State Medical Societies, and such County and District Medical Societies as are recognized by *representation in their respective State Societies*, and from the Medical Department of the Army and Navy of the United States.”

“Each State, County and District Medical Society entitled to representation shall have the privilege of sending to the Association one delegate for every ten of its regular resident members, and one for every additional fraction of more than half that number; *Provided*, however, that the number of delegates for any particular State, territory, county, city, or town shall not exceed the ratio of one in ten of the resident physicians who may have signed the Code of Ethics of the Association.”

Secretaries of Medical Societies as above designated are earnestly requested to forward, *at once*, lists of their delegates, in order that the Committee or Arrangements may be enabled to form some idea of the number likely to be present.

W. B. ATKINSON, *Permanent Secretary*.
Philadelphia, 1400 Pine Street.

ILLINOIS STATE MEDICAL SOCIETY.

The Twenty-Sixth Session of the Illinois State Medical Society will convene in Urbana, on Tuesday, May 16th.

Andral's Death.—The last survivor of the triumvirate—Andral, Chomel, and Louis—occurred recently. Andral was born November 6, 1797. In 1823 he was made a member of the Academy of Medicine; in 1843 he was elected to the Academy of Sciences. His various published works will always remain as monuments of his fame.—[*Boston Med. and Surg. Jour.*

Meteorological Observations.

By A. WISLIZENUS, M. D.

The following observations of daily temperature in St. Louis are made with a MAXIMUM and MINIMUM thermometer (of Green, N. Y.). The daily minimum occurs generally in the night, the maximum at 3 P. M. The monthly mean of the daily minima and maxima, added and divided by 2, gives a quite reliable mean of the monthly temperature.

THERMOMETER FAHRENHEIT—MARCH, 1876.

Day of Month.	Minimum.	Maximum.	Day of Month.	Minimum.	Maximum.
1	35.0	47.5	18	19.0	30.5
2	26.5	35.5	19	23.0	29.5
3	28.5	47.5	20	25.5	31.5
4	34.5	60.0	21	10.5	31.5
5	48.0	63.0	22	25.0	41.5
6	56.0	67.5	23	30.5	37.0
7	31.5	46.5	24	35.0	43.0
8	35.5	65.0	25	35.5	41.5
9	49.0	73.0	26	32.0	53.0
10	59.5	75.5	27	38.5	42.5
11	34.0	40.5	28	28.5	33.5
12	25.5	34.0	29	25.0	42.0
13	26.5	42.0	30	29.5	44.0
14	33.0	49.0	31	32.5	53.5
15	42.0	51.0			
16	35.0	40.5	Means	32.7	45.9
17	24.5	30.5	Monthly Mean	39.3	

Quantity of rain : 7.25 inches.

Mortality Report.—City of St. Louis.

FROM FEBRUARY 27, 1876, TO APRIL 1, 1876, INCLUSIVE.

Measles	8	Anemia	1	Dropsy, General	3	Congestion	1
Scarlatina	22	Anasarca	1	" of Ovarian	1	Hemorrhage	1
Variola	18	Marasmus	24	" & Spin. Abscess	1	Puerp. Peritonitis	2
Diphtheria	9	Scrofula	3	Malform. of Heart	1	" Fever	3
Croup, Membran's	10	Phthisis Pulmonalis	40	Heart Disease, Org.	1	Pregnancy, Album.	2
Whooping Cough	1	Tuberc. Mesenterica	2	Asthma	3	Senile Debility	5
Erysipelas	6	" Dorsalis	1	Laryngitis	5	" Gangrene	2
Typhoid Fever	8	Hydrocephalus	7	Bronchitis	34	Atrophy	3
Intermittent Fever	1	Ful'lar Meningitis	2	Pneumonitis	76	Asthma	6
Nervous Fever	1	Tubercular Enteritis	9	Congestion of Lungs	12	Crushing of Skull	1
Typho-Mal Fever	1	Apoplexy	3	Chronic Catarrh	1	Fracture of Skull	2
Bilious Fever	2	Softening of Brain	2	Gastritis	1	Wound, Gunshot	8
Continued Fever	2	Epilepsy	1	Enteritis	1	Burned	1
Congestive Chills	1	Convulsions, Infant	12	Peritonitis	7	Injuries blast' rock	1
Pyæmia	2	Cerebritis	2	Intus. of Intestines	1	Shock, R.R. injuries	2
Septicæmia, Puerp.	4	Paralysis	1	Inflam. of Intestines	2	Fall from Wagon	1
Diarrhœa	4	Paraphlegia	1	Dentition	1	Drowned	2
Dysentery	4	Hemiplegia	2	Cirrhosis of Liver	3	Concussion of Brain	2
Cer. Sp. Meningitis	3	Chorea	1	Hepatitis	2	For. body in Throat	1
Inanition	7	Tetanus	3	Nephritis	2	Exposure	2
Intemperance	3	Tetanus Nascentium	6	Bright's Disease	2	Ac. Suffocation	1
Mania-a-potu	1	Myelitis	2	Diabetes	2	Suicide by Hanging	2
Cancer	1	Congestion of Brain	10	Cystitis	1		
" Breast	2	Disease of Brain	2	Abscess of Liver	1	Total Deaths	583
" Stomach	2	Thrombus	1	Metritis	5		
" Uterus	1	Inflammation of Brain	2	Strict. of Urethra	1	Still Births	36
" Epithelioma	1	Fat. Deg. of Heart	1	Abscess Abdom.	1		
" Rectum	2	Pericarditis	2	Atelectasis	1		
" Head & Face	2	Endocarditis	1	Premature Birth	15		
" Encephaloid	1	Valv. Dis. of Heart	3	General Debility	5		

R. H. O'BRIEN, M. D., Clerk Board of Health.

COMPRESSED PILLS.

Manufactured by JOHN WYETH & BRO., Chemists,
No. 1412 WALNUT STREET, PHILADELPHIA.

These "Compressed Pills," made by dry compression, are free from the coatings that render many other pills objectionable. They are readily soluble or diffusible, and being flat in shape, are more easily swallowed than those in any other form. Owing to the absence of the excipients ordinarily employed in making pills, they are smaller than those made by any other process. They are smooth, glossy, and elegant in appearance, and are made only of the purest materials. Leading physicians have found these Compressed Pills to be reliable and quick in their action. The Pills can be sent by mail to druggists and physicians at an expense of 16c. per pound, or 1c. per ounce, for postage.

	Grains.		Grains.
ACID ARCENICI.....	1-20 1-50	MORPHIE SULPHAT.....	1-10 1/2 1/2
ACID, TANNIC.....	2 5	(Quinine Sulph.)	1 1/2
ALOE (U. S. P.) { Pulv. Aloes Soc.	2	NEURALIC.....	Morphie..... 1-20
ALOE et FERRI { Pulv. Saponis.....	2	(Strychnie.....)	1-30
ALOE et FERRI { Pulv. Aloes Soc.	1 1/2	(Ext. Aconit.....)	1/2
ALOE et FERRI { Pulv. Zingib. Jam.	1	OPII.....	1 1/2
ALOE et FERRI { Fer. Sulph. Exsic.	1	OPII (Opil.....)	1
ALOE et FERRI { Ext. Conii.....	1 1/2	et CAMPIL (Camp.....)	2
ALOE et FERRI { Pulv. Aloes Soc.	2	OPII (Opil.....)	5
ALOE et FERRI { Pulv. Myrrhie.....	1	et PLUMBI AC. (Plumbi Acet.....)	1 1/2
(U. S. P.) { Croci Stigmat.....	1 1/2	PANCREATIN.....	1
AMMONIA BROMID.....	5 10	PEPSIN.....	5
AMMONIA MURIAT.....	3 5	PEPSIN PORCI (Bismuth Sub-Nit.....)	5
ANTI-BILIOUS (Ext. Coloc. Co.)	2 1/2	et BISMUTH (Pepsin Porci.....)	1
(Vegetable) (Podophyllin.....)	1 1/2	PEPSIN PORCI (Pepsin Porci.....)	2
ANTI- (Pulv. Ipecac.....)	1-10	et BISMUTH (Bismuth Sub-Nit.....)	5
DYSPEPTIC. (Mass Hydrarg.....)	2	et FERRI (Ferri Met.....)	1 1/2
(Ext. Coloc. Co.)	2	PEPSIN PORCI (Bismuth Sub-Nit.....)	2 1/2
(Ext. Nucis Vom.....)	1 3/4	et BISMUTH (Pepsin Porci.....)	2 1/2
APERIENT. (Ext. Coloc. Co.)	2 3/4	et STRYCHNIE (Strychnie.....)	1-60
(Pulv. Rhei.....)	1 1/2	PEPSIN PORCI (Pepsin Porci.....)	3
BISMUTH SUB-NIT.....	5 10	CALCI LACTO. (Calci Lactophosph.....)	2
BISM. SUB-NIT. (Bismuth Sub-Nit.....)	2 1/2	PEPSIN PORCI (Pepsin Porci.....)	5
et PEPsin. (Pepsin.....)	2 1/2	et FERRI (Ferri Pyrophosph.....)	2
CALOMEL.....	1 1/2 1 2 3 5	PEPSIN PORCI (Pepsin Porci.....)	5
CATHART. COMP. (U. S. P.)		et STRYCHNIE (Strychnie.....)	1-60
CATHART. IMPROVED. (Ext. Coloc. Simp.....)	1 1/2	PEPSIN PORCI (Pepsin Porci.....)	2
(Podophyllin.....)	1 1/2	et BISMUTH (Bismuth Sub-Nit.....)	2
CATHARTIC (Pulv. Res. Scam.....)	1 3/4	PEPSIN COMP. (Pepsin.....)	2
(Vegetable). (Pulv. Aloes Soc.)	1 1/4	(Sodii Lactac.....)	2
(Pulv. Cardamomi.....)	1-9	(Magnesia.....)	2
(Pulv. Saponis.....)	1 1/2	PHOSPHORI.....	1-60 1-100
CERII OXALAT.....	2	(c. Sacch. Lact. 2 grs.)	
COOK'S. (Aloes.....)	1	PHOSPHORI (Phosphori.....)	1-100
(Calomel.....)	1 1/2	COMP. (Ext. Nucis Vom.....)	1 1/2
(Rhei.....)	1	PODOPHYLLIN.....	1-10
(Sapo.....)	1 1/2	(c. Sacch. Lactis 2 grs.)	
COLYCINTH. COMP. (U. S. P.)		PODOPHYLLIN.....	1 1/2 ad 2
DOVER'S POWDER. (Ipecac and Opil.....)	2 3 5	PODOPHYLLIN (Podophyllin.....)	1 1/2
FERRI MET. (Quevenne's.....)	1	Ext. Hyos.....	1 1/2
FERRI CARB. PROTIO.....	3 5	COMP. (Ext. Nuc. Vom.....)	1-16
FERRI CARB. (Ferri Carb. Vallet.....)	2	PODOPHYLLIN (Podophyllin.....)	1 1/2
QUINLE et (Quinine Sulph.....)	1	et HYDRARG. (Mass Hydrarg.....)	2
STRYCHNIE. (Strychnie.....)	1-60	POTASS. BI-CARB.....	8
FERRI LACTAT.....	1	POTASS. BROMID.....	5 10
FERRI PYROPHOSPH.....	1	QUINLE BI-SULPH.....	1 1/2 1 2 3 4 5
FERRI et QUINLE CITRAT.....	2 3	QUINLE SULPHAT.....	1 1/2 1 2 3 4 5
FERRI et (Ferri Met.....)	1 1/2	QUINLE et (Quinine Sulph.....)	1
QUINLE SULPH (Quinine Sulph.....)	1 1/2	FERRI et (Ferri Pulv.....)	1
et BISMUTH (Bismuth Sub-Nit.....)	5	STRYCHNIE (Strychnie.....)	1-60
et PEPsin. (Pepsin Porci.....)	2	RHEI (U. S. P.) (Pulv. Rhei.....)	3
FERRI et (Ferri Met.....)	1 1/2	(Pulv. Saponis.....)	1
QUINLE SULPH (Quinine Sulph.....)	1 1/2	(Pulv. Rhei.....)	2
et BISMUTH et (Bismuth Sub-Nit.....)	5	RHEI COMP. (Pulv. Aloes Soc.....)	1 1/2
PEPSIN et (Pepsin Porci.....)	2	(U. S. P.) (Pulv. Myrrh.....)	1
STRYCHNIE. (Strychnie.....)	1-60	Ol. Menth. Pip.....	1
HOOPERS.....		SANTONIN.....	1
HYDRARG. (U. S. P.).....	1 2 3 5	(Sodii Bi-Carb.....)	8
IODIFORM.....	1	Ammon. Carb.....	1 1/2
IODIFORM et (Iodoform.....)	1	Ol. Menth. Pip.....	1 1/2
FERRI. (Ferri Carb. Vallet.....)	2	Strychnie.....	1-100
LADY (Pulv. Aloes Soc.....)		Phosphor.....	1-100
WEBSTER'S (Gum. Mastich.....)		Ext. Cannab Ind.....	1-16
(3 grs.) (Flor. Rose.....)		(Ferri Carb. Vallet.....)	1
LEPTANDRIN. (Leptandrin.....)	1 ad 1	(Aloes.....)	2
(c. Sacch. Lactis 2 grs.)		Pil. Hydrarg.....	1
		Podophyllin.....	1 1/2
		TRIPLEX.....	

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The only *pleasant* way in which Quinine can be given to ladies, children and convalescents. Prepared by

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The most practical and effectual instrument in the market; made of **SOFT RUBBER** with an interior rod or stem of **Hard Rubber**, susceptible of being bent to any desired curve. **NON-IRRITATING, EASY OF APPLICATION AND CLEANLY.** It affords a support as strong and firm as the metal and hard rubber instruments, without their rigidity.

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Long Island College Hospital, Brooklyn, New York.

SESSION OF 1875-6.

The **Collegiate Year** in this institution embraces a **READING** and **RECITATION TERM** and a **REGULAR TERM** of **LECTURES**.

The **READING** and **RECITATION TERM** will commence October 1, 1875, and close at the commencement of the Regular Term.

The **REGULAR TERM** will open March 1st, 1876, and close the last week in June following.

THE LONG ISLAND COLLEGE HOSPITAL was the first, in this country, to unite a *Hospital* and a *Medical School*, for the purpose of securing more thorough *demonstrative* teaching. The Hospital is under the immediate control of the Regents and Council of the College, and therefore fully available for all purposes of practical instruction.

Over twelve thousand patients are treated annually in this institution—hence the clinical material is ample. Advanced students have *free access to the Wards of the Hospital*. The practical departments are therefore largely taught at the bedside.

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Crutches of all Sizes. Dr. Bly's Artificial Legs.

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Refers to Profs. E. H. GREGORY & J. T. HODGEN, and most of the Surgeons and Physicians of this city. Office open from 7 o'clock a. m. to 7 p. m.

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Solicits the co-operation and encouragement of the medical profession, who are cognizant of the necessity for such an institution, since experience has demonstrated that, as a rule, these cannot be successfully managed at their own homes.

Every courtesy will be extended to medical gentlemen desiring to treat or be consulted in the treatment of the cases they may confide to us. Visits from medical gentlemen are solicited in order that they may become familiar with the working of the Institution, and permit us to refer to them.

Arrangements for treatment may be made with Drs. WIDNEY, HUGHES, or NEWMAN.

THE HEALTH LIFT

IS BECOMING INDISPENSABLE AS AN ADJUNCT TO MEDICAL TREATMENT, AND IS NOW IN THE OFFICES OF MANY OF OUR LEADING PHYSICIANS. NO ONE THING WILL SO GREATLY HELP THE DOCTOR IN RESTORING HIS PATIENTS. IT IS UNIVERSALLY RECOMMENDED BY THE MEDICAL PROFESSION.

ADDRESS FOR FULL PARTICULARS, F. G. WELCH, M.D., Manager,

AGENTS WANTED

HEALTH LIFT CO., 46 EAST 14TH ST., NEW YORK.

PURE COD-LIVER OIL,

Manufactured on the Sea-Shore by HAZARD & CASWELL, from Fresh and Selected Livers.

The universal demand for Cod Liver Oil that can be depended on as strictly pure and scientifically prepared, having been long felt by the Medical Profession, we were induced to undertake its manufacture at the Fishing Stations, where the fish are brought to land every few hours, and the Livers consequently are in great perfection.

This oil is manufactured by us on the sea-shore with the greatest care, from fresh, healthy Liv-

The secret of making good Cod-Liver Oil lies in the proper application of the proper degree of heat; too much or too little will seriously injure the quality. Great attention to cleanliness is absolutely necessary to produce sweet Cod-Liver Oil. The rancid Oil found in the market is the make of manufacturers who are careless about these matters.

PROF. PARKER, of N. Y., says: "I have tried almost every other manufacturer's Oil, and give yours the preference."

PROF. HAYS, State Assayer of Massachusetts, after a full analysis of it, says: "It is best for foreign or domestic use."

After years of experimenting, the Medical Profession of Europe and America, who have studied the effects of different Cod-Liver Oils, have unanimously decided the light straw-colored Cod-Liver Oil to be far superior to any of the brown Oils.

The Three Best Tonics of the Pharmacopœia: IRON-PHOSPHORUS - CALISAYA.

CASWELL, HAZARD & CO. also call the attention of the Profession to their preparation of the above estimable tonics, as combined in their elegant and palatable **Ferro-Phosphorated Elixir of Calisaya Bark**, a combination of the Pyrophosphate of Iron and Calisaya never before attained, in which the nauseous inkiness of the iron and astringency of the Calisaya are overcome, without any injury to their active tonic principles, and blended into a beautiful Amber-colored Cordial, delicious to the taste and acceptable to the most delicate stomach. This preparation is made directly from the **ROYAL CALISAYA BARK**, not from **ITS ALKALOIDS OR THEIR SALTS**—being unlike other preparations called "Elixir of Calisaya Bark and Iron," which are simply **Elixir of Quinine and Iron**. Our Elixir can be depended upon as being a true Elixir of Calisaya Bark with Iron. Each dessert spoonful contains seven and a half grains of Royal Calisaya Bark, and two grains Pyrophosphate of Iron.

Ferro-Phosphorated Elixir of Calisaya Bark with Strychnia. This preparation contains one grain of Strychnia added to each pint of our Ferro-Phosphorated Elixir of Calisaya Bark, greatly intensifying its tonic effect.

Ferro-Phosphorated Elixir of Calisaya with Bismuth. containing eight grains Ammonia-Citrate of Bismuth in each tablespoonful of the Ferro-Phosphorated Elixir of Calisaya Bark.

Elixir Phosphate Iron, Quinia and Strychnia. Each teaspoonful contains one grain Phosphate Iron, one grain Phosphate Quinine, and one sixty-fourth of a grain of Strychnia.

Ferro-Phosphorated Elixir of Gentian, containing one ounce of Gentian, and one hundred and twenty-eight grains Pyrophosphate of Iron to the pint making in each dessert-spoonful seven and one-half grains Gentian to two grains Pyrophosphate Iron.

Elixir Valerianate of Ammonia. Each teaspoonful contains two grains Valerianate Ammonia.

Elixir Valerianate of Ammonia and Quinine. Each teaspoonful contains two grains Valerianate Ammonia and one grain of Quinine.

Ferro-Phosphorated Wine of Wild Cherry Bark. Each fluid-drachm contains twenty-five grains of the Bark, and two grains of Ferri Pyrophosphate.

Wine of Pepsin. This article is prepared by us from fresh Rennets and pure Sherry Wine.

Elixir Taraxacum Comp. Each dessert-spoonful contains fifteen grains of Taraxacum.

Elixir Pepsin, Bismuth, and Strychnine. Each fluid-drachm contains one sixty-fourth of a grain of Strychnine.

Juniper Tar Soap. Highly recommended by the celebrated Erasmus Wilson, and has been found very serviceable in chronic eczema and diseases of the skin generally. It is invaluable for chapped hands and roughness of the skin caused by change of temperature. It is manufactured by ourselves, from the purest materials, and is extensively and successfully prescribed by the most eminent physicians.

Iodo-Ferrated Cod-Liver Oil. This combination holds sixteen grains Iodide of Iron to the ounce of our pure Cod-Liver Oil.

Cod-Liver Oil, with Iodine, Phosphorus, and Bromine. This combination represents Phosphorus, Bromine, Iodine, and Cod-Liver Oil, in a state of permanent combination, containing in each pint: Iodine, eight grains; Bromine, one grain; Phosphorus, one grain; Cod-Liver Oil, one pint.

Cod-Liver Oil, with Phosphate of Lime. This is an agreeable emulsion, holding three grains Phosphate of Lime in each tablespoonful.

Cod-Liver Oil, with Lacto-Phosphate of Lime.

ers of the Cod only, without the aid of any chemicals, by the simplest possible process and lowest temperature by which Oil can be separated from the cells of the Livers. It is nearly devoid of color, odor and flavor—having a bland, fish-like, and, to most persons, not unpleasant taste. It is so sweet and pure that it can be retained on the stomach when the other kinds fail, and patients soon become fond of it.

CASWELL, HAZARD & CO.,

Druggists and Chemists, New York.

TO THE MEDICAL PROFESSION.

A NEW AND IMPORTANT REMEDY.

LACTOPEPTINE.

LACTOPEPTINE contains all the agents of digestion that act upon food, from mastication to its conversion into chyle, and is therefore the most important remedy for Dyspepsia that has ever been produced.

The digestive power of LACTOPEPTINE is seven times greater than any preparation of Pepsin in the market, as it has the important advantage of dissolving all aliment used by mankind, while Pepsin acts only upon plastic food.

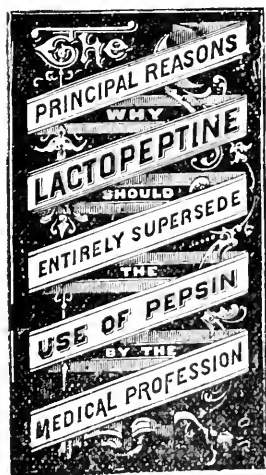
This preparation has now been in the hands of the Medical Profession for two years, during which time its therapeutic value has been most thoroughly established in cases of Dyspepsia, Intestinal diseases of Children, Chronic Diarrhoea, Constipation, Vomiting in Pregnancy or Dyspepsia, Headache, and all diseases arising from imperfect nutrition.

One of the most important applications of LACTOPEPTINE is in those cases where the digestive organs are unable, from debility, to properly prepare for assimilation the remedies indicated. In such cases combine it with the remedy indicated.



— LACTOPEPTINE, as well as all other preparations of our manufacture, is prepared strictly for the use of the Medical Profession, and is kept invariably in their hands.

FORMULA OF LACTOPEPTINE.	
Sugar of Milk,	20 Ounces.
Pepsin,	4 "
Pancreatine,	3 "
Ptyalin or Diastase,	1 Drachm.
Lactic Acid,	24 fl. Drachms.
Hydrochloric Acid,	24 fl. "
Powder and Mfic.	



- 1st.—It will digest from three to four times more *coagulated albumen* than any preparation of Pepsin in the market.
- 2d.—It will emulsify and prepare for assimilation the oily and fatty portions of food, Pepsin having no action upon this important alimentary article.
- 3d.—It will change the *starchy* portions of vegetable food into the assimilable form of Glucose.
- 4th.—It contains the natural acids secreted by the stomach (*Lactic and Hydrochloric*), without which Pepsin and Pancreatine will not change the character of coagulated albumen.
- 5th.—Experiments will readily show that the digestive power of the ingredients of Lactopeptine, when two or more are combined, is much greater than when separated. Thus, 3 grs. of Pepsin and 4 grs. of Pancreatine mixed, will dissolve one-third more albumen than the combined digestive power of each agent separately in same length of time.
- 6th.—IT IS MUCH LESS EXPENSIVE TO PRESCRIBE. It dissolves nearly four times as much coagulated albumen as Pepsin, besides digesting all other food taken by the human stomach. An ounce of Lactopeptine is, therefore fully equal in digestive power to seven ounces of Pepsin, yet it is furnished at about the same price.

All the statements made in this Circular are the result of repeated and careful experiments.

The palatability and digestive power of LACTOPEPTINE has been more than doubled during the past two months, by producing several of its component parts free from all extraneous matter, and we now believe it is not susceptible of any further improvement.

Physicians who have not given LACTOPEPTINE a trial in their practice, are respectfully requested to read the following opinions of some of our leading Practitioners as to its merits as an important remedial agent.

IN ADDITION TO THE FOLLOWING RECOMMENDATIONS, WE HAVE RECEIVED OVER SEVEN HUNDRED COMMENDATORY LETTERS FROM PHYSICIANS, A LARGE NUMBER OF WHICH ENUMERATE CASES WHERE PEPSIN ALONE HAD FAILED TO BENEFIT, BUT FINALLY HAD BEEN TREATED SUCCESSFULLY WITH LACTOPEPTINE.

—00—

The undersigned, having tested REED & CARRICK's preparation of Pepsin, Pancreatine, Diastase, Lactic Acid and Hydrochloric Acid, made according to published formulae, and called *Lactopeptine*, find that in those diseases of the stomach where the above remedies are indicated, it has proven itself a desirable, useful and well adapted addition to the usual pharmaceutical preparations, and therefore recommend it to the profession.

NEW YORK, April 6th, 1875.

J. R. LEAMING, M. D.,

Attending Physician at St. Luke's Hospital.

ALFRED L. LOOMIS, M. D.,

Professor of Pathology and Practice of Medicine, University of the City of New York.

JOSEPH KAMMERER, M. D.,

Clinical Professor of Diseases of Women and Children, University of the City of New York.

LEWIS A. SAYRE, M. D.,

Professor of Orthopaedic Surgery and Clinical Surgery, Bellevue Hospital Medical College.

EDWARD G. JANEWAY, M. D.

Professor Pathological and Practical Anatomy, and Lecturer on Materia Medica and Therapeutics and Clinical Medicine.

SAMUEL R. PERCY, M. D.,

Professor Materia Medica, New York Medical College.

J. H. TYNDALL, M. D.,

Physician at St. Francis' Hospital.

JOSEPH E. WINTERS, M. D.,

House Physician Bellevue Hospital

GEO. F. BATES, M. D.,

House Surgeon Bellevue Hospital.

—00—

INEBRIATE ASYLUM, NEW YORK, March 25th, 1875.

I have carefully watched the effects of LACTOPEPTINE, as exhibited in this institution, for about six months, especially in the treatment of Gastritis, and it gives me pleasure to be able to say that I have found the best results from it, supplying as it does an abnormal void of nature in the secretions of the stomach. N. KEELER MORTON, M. D.

—00—

BRANDON, VT., March 31st, 1875.

I desire to say that I have used LACTOPEPTINE for a year, not only on my friends, but also in my own case, and have found it one of the most valuable aids to digestion that I have ever used.

A. T. WOODWARD, M. D.,

Late Professor of Obstetrics and Diseases of Women and Children Vermont Med. College.

—00—

EXTRACT FROM A REPORT UPON THE USES OF LACTOPEPTINE,

BY J. KING MERRITT, M. D., FLUSHING, L. I.

About six months since I saw a notice of LACTOPEPTINE and its analysis in a Medical Journal, and having long ago recognized the inability of Pepsin to reach those cases in which the several processes of digestion are all more or less involved, I immediately commenced the use of LACTOPEPTINE in my own case. This was, in brief, an inherited, fostered, persistent condition of General Dyspepsia, which I had treated for several years with Pepsin, finding in its use good service, although the general results were discouraging.

A large proportion of diseases are the result of imperfect digestion.

In all cases when the stomach is unable to digest and appropriate the remedies indicated, they should be combined with
Lactopeptine.

The effect of *LACTOPEPTINE* on my powers of digestion has far surpassed my expectations, and its remedial qualities in numerous cases, more or less complicated, have been all that I could desire. In these cases *LACTOPEPTINE* was associated with other remedies indicated, for the purpose of facilitating their assimilation, which is so often nullified by a disordered and debilitated condition of the digestive organs.*

I will now give, in brief, an epitome of a case recovering under the use of *LACTOPEPTINE*. She was a married lady, who five years ago became afflicted with diarrhoea, which had baffled every mode of intelligent treatment. She had an intestinal flux, body much emaciated, and her entire health was greatly impaired. I treated her with *LACTOPEPTINE*, in conjunction with other remedies, many of which had been formerly used without avail. She is now rapidly recovering.

I shall only add that the more my experience, in its varied applicability, extends, the more its beneficial effects appear.

—00—

NEWTON, IOWA, May 10th, 1875.

I have been using *LACTOPEPTINE* for several months, and after a careful trial in stomach and bowel troubles, find that it has no equal. In all cases of indigestion and lack of assimilation, it is a most splendid remedy.

H. E. HUNTER, M. D.

—00—

WEST NEWFIELD, ME., June 14th, 1875.

LACTOPEPTINE seems to be all that it is recommended to be. It excels all remedies that I have tried in aiding a debilitated stomach to perform its functions.

STEPHEN ADAMS, M. D.

—00—

WOLCOTT, WAYNE CO., N. Y., Jun. 29th, 1875.

From the experience I have had with *LACTOPEPTINE*, I am of the opinion that you have produced a remedy which is capable of fulfilling an important indication in a greater variety of diseases than any medicine I have met with in a practice of over 45 years.

JAMES M. WILSON, M. D.

—00—

BROWNVILLE, N. Y., August 3d, 1875.

Some time since I received a small package of *LACTOPEPTINE*, which I have used in a case of long standing Dyspepsia. The subject is a man 40 years of age; has had this ailment over 10 years. I never had so bad a case before, and I have been practicing medicine 21 years. Your *LACTOPEPTINE* seems just the remedy he needs. He is improving finely, and can now eat nearly any kind of food without distress. I have several cases I shall take hold of as soon as I can obtain the medicine.

W. W. GOODWIN, M. D.

—00—

EDDYVILLE, WAPELLO CO., IOWA, May 5th, 1875.

I have used the *LACTOPEPTINE* in my practice for the last eighteen months, and find it to be one of our great remedies in all diseases of the stomach and bowels. I was called last fall to see a child three years old, that was almost in the last struggles of death with Cholera Infantum. I ordered it teaspoonful doses of Syrup of Lactopeptine, and in a few days the child was well. I could not practice without it.

F. C. CORNELL, M. D.

—00—

CORTLAND, DE KALB CO., ILL., August 12th, 1875.

I received recently a small package of *LACTOPEPTINE* with the request that I should try it in a severe case of Dyspepsia. I selected a case of a lady who has been a sufferer over 30 years. She reported relief after the first dose, and now, after using the balance of the package in doses of three grains, three times daily, says she has received more benefit from it than from any other remedy she had ever tried.

G. W. LEWIS, M. D.

* We desire particularly to call the attention of the Profession to the great value of *LACTOPEPTINE* when used in conjunction with other remedies, especially in those cases in which the digestive organs are unable, from debility, to properly prepare for assimilation the remedies indicated.

One drachm of Lactopeptine will digest ten ounces of Coagulated Albumen while the same quantity of any standard preparation of Pepsin in the market will dissolve but three ounces.

One drachm of Lactopeptine dissolved in four fluid drachms of water will emulsionize sixteen ounces of Cod Liver Oil.

CHILLICOTHE, Mo., September 4th, 1874.

I have used **LACTOPEPTINE** this summer with good effect in all cases of weak and imperfect digestion, especially in children during the period of dentition, cholera infantum, &c. I regard it, decidedly, as being the best combination containing Pepsin that I have ever used.

J. A. MUNK, M. D.

—00—

FORT DODGE, IOWA, November 15th, 1874.

I have fairly tried, during the past summer and fall, your **LACTOPEPTINE**, and consider it a most useful addition to the list of practical remedies. I have found it especially valuable in the *gastro-intestinal* diseases of children. W. L. NICHOLSON, M. D.

—00—

WHITE HALL, VA. January 4th, 1875.

A short time since I sent for some of your **LACTOPEPTINE**, which I used in the case of a lady who had been suffering with dyspepsia for over twelve months, and who had taken Pepsin, and other remedies usually prescribed in that disease, with very little benefit. I ordered the **LACTOPEPTINE**, and was pleased to find a decided improvement after a few days, which has steadily increased. At the present time she appears to have entirely recovered.

Very truly,

SMOKE, M. D.

—00—

INDIANOLA, IOWA, December 11th, 1874,

I consider the **LACTOPEPTINE** a heaven-sent remedy for all digestive troubles. I gave it to a lady troubled with exhaustive nausea and vomiting from pregnancy, with immediate and perfect relief, after all other remedies had failed. She was almost in *articulo mortis*. The third day after taking the **LACTOPEPTINE** she was able to be up. I was called in council the other day to a case of Intussusception; the patient was vomiting stercoraceous matter; had retained no nutrition for several days. I gave the **LACTOPEPTINE** with immediate relief. Ingestion was retained. I relieved the bowels by inflation, got an operation, and the patient will recover. I consider the **LACTOPEPTINE** was his *sheet anchor*. I am now using the **LACTOPEPTINE** in Cancer of the Stomach—the only medicine that gives the patient any relief. It seems to act as an anodyne in his case more so than morphine.

C. W. DAVIS, M. D.

—00—

CONTOCOOK, N. H., November 25th, 1874.

After a thorough trial, I believe **LACTOPEPTINE** to be one of the most important of the new remedies that have been brought to the attention of physicians during the last ten years. I have used it in several cases of vomiting of food from dyspepsia, and in the vomiting from pregnancy, with the best of success. The relief has been immediate in every instance. In some of the worst cases of Cardialgia, heretofore resisting all other treatment, **LACTOPEPTINE** invariably gave immediate relief. It has accomplished more, in my hands, than any other remedy of its class I ever met with, and I believe no physician can safely be without it. It takes the place of Pepsin, is more certain in its results, and is received by patients of all ages without complaint, being a most pleasant remedy. I have used **LACTOPEPTINE** in my own case, having been troubled with feelings of weight in the stomach and distress after eating, but always have obtained immediate relief upon taking the elixir in teaspoonful doses. GEO. C. BLAISDELL, M. D.

—00—

MO. VALLEY, IOWA, November 12th, 1874

Some months since I saw in a medical journal a notice of your **LACTOPEPTINE**. Having in charge a patient in whose case I thought it was indicated, I prescribed it in 5 gr. doses. He used it about a week and was greatly benefited. I failed to procure more just then, so I gave him Pepsin instead, the patient thinking it to be the same prescription. After two days he returned to my office saying that "the last medicine didn't hit the spot, but that which you gave me last week was just the thing, and has given me more relief than any medicine I have ever taken." I consider this a fair test (so far as it goes) of the merits of this new, and I think, invaluable remedy. G. W. COIT, M. D.

One drachm of Lactopeptine will transform four ounces of Starch into Glucose.

Pancreatine and Diastase are more important digestive agents than Pepsin.

COMMUNICATIONS FROM MEDICAL JOURNALS.

We have for several months been prescribing various preparations of medicine containing **LACTOPEPTINE** as an important aid to digestion. It may be advantageously combined with cod liver oil, calisaya, iron, bismuth, quinine and strychnia. **LACTOPEPTINE** is composed of pepsin, ptyalin, pancreatine, lactic acid and hydrochloric acid—pepsin, lactic and hydrochloric acids being in the gastric juice, ptyalin in the saliva, and pancreatine emulsifying fatty substances. The theory of its action being rational, we have prescribed the various preparations referred to above with more evidence of benefit than we ever observed from pepsin.—*St. Louis Medical and Surgical Journal*, September, 1874.

—00—
AN ARTICLE ON LACTOPEPTINE, BY LAURENCE ALEXANDER, M. D., OF YORKVILLE, S. C., IN THE *ATLANTA MEDICAL AND SURGICAL JOURNAL*, NOVEMBER, 1874.

Some time ago a small box, labelled "Physicians' Samples **LACTOPEPTINE**" was placed in my hands, with the request that I would give it a trial upon some one suffering from dyspepsia. Having, like other physicians, a large *per centum* of just such cases always on hand, in which various medicines and remedies had been used without success, I gladly consented, hoping that something had really been found at last to supply the want felt by every practitioner in the treatment of this troublesome complaint. After several months' experience in the use of this preparation, in which it has been thoroughly tested upon a large number of patients with such gratifying results, I am induced to recommend it to the consideration of the profession, feeling confident that, with due care in their diagnosis, and the many little cautions always necessary, such as restricting the excessive use of fluids while eating, etc., and a little patience on the part of the sufferer, its good effects will be seen beyond a doubt.

While I employ it extensively in many deranged conditions of the bowels incident to infancy and childhood, I find it equally efficacious in constipation and all diseases arising from imperfect nutrition in the adult. In sickness of pregnancy it answers well, far exceeding, in my hands, oxalate of cerium, extract lupulin, or the drop doses of carbolic acid, so highly extolled by some practitioners. In its combination with iron, quinine and strychnia, we have the advantage of using, in cases of great nervous depression and debility peculiar to the dyspeptic, our most valuable agent in a truly elegant form.

TO TEST THE DIGESTIVE POWER OF LACTOPEPTINE IN COMPARISON WITH ANY PREPARATION OF PEPSIN IN THE MARKET.

To five fluid ounces of water add one drachm of Lactopeptine, half drachm of Hydrochloric Acid, 10 ounces Coagulated Albumen, allowing it to remain from two to six hours at a temperature of 105 deg., agitating it occasionally.

Lactopeptine is prepared in the form of Powder, Sugar Coated Pills, Elixir, Syrup, Wine and Troaches.

LACTOPEPTINE is also combined with the following preparations :

EMULSION OF COD LIVER OIL WITH LACTOPEPTINE.

This combination will be found superior to all other forms of Cod Liver Oil in affections of the Lungs and other wasting diseases. Used in Coughs, Colds, Consumption, Rickets, Constipation, Skin Diseases and Loss of Appetite.

The Oil in this preparation being partly digested before taken, will usually agree with the most debilitated stomach. Although we manufacture seven other preparations of Cod Liver Oil, we would recommend the above as being superior to either of them. It is very pleasant to administer, compared with the plain Oil, and will be readily taken by children

EMULSION OF COD LIVER OIL WITH LACTOPEPTINE AND LIME.

Each ounce of the Emulsion contains 16 grs. Lactopeptine and 16 grs. Phosphate Lime.

ELIXIR LACTOPEPTINE.

The above preparation is admirably adapted in those cases where Physicians desire to prescribe Lactopeptine in its most elegant form.

REED & CARRICK manufacture a full line of Fluid Extracts.

BEEF, IRON AND WINE WITH LACTOPEPTINE.

In those debilitated dyspeptic cases when an Iron Tonic, combined with the strengthening properties of Extract of Beef and Wine are indicated, this preparation will be found most efficacious.

—oo—

ELIXIR PHOSPHATE OF IRON, QUININE AND STRYCHNIA WITH LACTOPEPTINE.

There can be no combination more suitable than the above in cases of Nervous and General Debility, attended with Dyspepsia.

—oo—

ELIXIR LACTOPEPTINE, STRYCHNIA AND BISMUTH.

A valuable combination in cases of Dyspepsia attended with Nervous Debility.

—oo—

ELIXIR GENTIAN AND CHLORIDE OF IRON WITH LACTOPEPTINE.

An elegant and reliable remedy in cases of Dyspepsia attended with General Debility.

—oo—

SYRUP LACTOPEPTINE COMP.

Each ounce contains 24 grains Lactopeptine, 8 grains Phosphate of Iron, 8 grains Phosphate Lime, 8 grains Phosphate Soda, and 8 grains Phosphate Potash.

This preparation will be found well suited to cases of General Debility arising from impaired digestion, and also of great value in Pulmonary Affections.

—oo—

FORMULÆ.

The following valuable formulæ have been contributed by J. KING MERRITT, M.D., who has used them with great success in his practice :

NO. 1.—FOR INTERMITTENT FEVER WITH CONGESTION OF LIVER.

R	Liquid Lactopeptine,	dr. vi.
	Fl. Ex. Cinchona Comp,	dr. i.
	Fl. Ex. Taraxacum,	—
	Tinct. Zingiber,	aa dr. iii.
	Hydrochloric Acid Dilut.,	dr. i.
	Spts. Lavender Comp.,	dr. ii.
	Sulphate Quinia,	grs. xl.

M. Dose.—One teaspoonful every two or three hours.

SIG.—Quinine mixture or tonic mixture.

REMARKS.

This mixture should be taken every two hours in the case of a quotidian attack, as soon after the subsidence of the paroxysms as the stomach will accept it, or even during the sweating stage, if the stomach is not especially irritable, and should be continued until the hour of anticipated paroxysms at the same rate, except during the night, from 10 P. M. to 4 A. M., as a general rule. Six to eight doses to be taken during the first interval, and if the attack does not recur, then continue the mixture daily for one week, at a rate diminished by one hour each day.

NO. 2.—FOR INTERMITTENT FEVER WITH IRRITABLE STOMACH.

R	Liquid Lactopeptine,	dr. vi.
	Fl. Ex. Cinchona Comp,	dr. i.
	Tinct. Zingiber,	dr. iii.
	Spts. Lavender Comp,	dr. v.
	Aromatic Sulphuric Acid,	dr. i.
	Essence Menth. Pip. or Gaultheria,	gtts. x.
	Sulphate Quinia,	grs. xl.

M. Dose.—One teaspoonful with water *ad libitum* every two or three hours, as in Formula No. 1, and in accordance with the type of the attack. Begin at the rate indicated;

All our goods are of guaranteed strength and uniformity.

that is, if "Tertian," every three hours, and then after first interval, if the paroxysm does not recur, continue mixture at a diminished rate each succeeding day, as indicated in remarks appended to Formula No. 1, to wit: by increasing the period of time between each dose of medicine an hour every day until a week has passed, when the frequency of a dose will be reduced to three times a day, at which rate it should be continued until complete restoration of appetite and strength.

NO. 3.—FOR MALARIAL DYSPEPSIA.

R	Liquid Lactopeptine,	dr. fl. vi.
	Fl. Ex. Cinchona Com.,	—
	Tinc. Nux. Vomica,	aa dr. xi.
	Spts. Lavender Comp.,	oz. ss.
	Hydrocyanic Acid Dilut.,	dr. ss.
	Syr. Aromatic Rhubarb.,	oz. ss.
	Sulphate Quinine,	dr. ss.

M. Dose.—One tablespoonful with water *ad libitum* at meals (before or after), and at bed time if required; also, use in addition after the meals full doses of Pulv. Lactopeptine with Spts. Lavender Comp. and Lime Water, in case the patient should suffer from positive signs of indigestion, although the dose of Formula No. 3 has already been taken at the meal time, either immediately before or after eating, in accordance with the rule or foregoing instruction.

NO. 4.—FOR CHRONIC DIARRHŒA.

R	Liquid Lactopeptine,	dr. vi.
	Liq. Opii. Comp. (Squibbs'),	dr. iii.
	Nitric Acid Dilute; or, Aqua Regia Dilut.,	dr. i.
	Syr. Aromatic Rhubarb.,	dr. ii.
	Pulv. Nit. Bismuth,	dr. ss.
	Aqua Camph.,	oz. ss.

M. Dose.—One tablespoonful with water after each flux from bowels, and as a rule, at bed time, even if the diarrhœa is apparently checked at that hour, and this rule, should be persisted in for two or three days, or until the diarrhœal tendency has been entirely subdued.

—oo—

PEPSIN—PANCREATINE—DIASTASE.

In addition to *LACTOPEPTINE* we manufacture *PEPSIN*, *PANCREATINE* and *DIASTASE*. They are put up separately in one ounce and pound bottles.

They will be found equal in strength with any other manufacture in the world.

They are all presented in a saccharated form, and are therefore very palatable to administer.

COMP. CATHARTIC ELIXIR.

The only pleasant and reliable Cathartic in liquid form that can be prescribed.

Each fl. oz. contains:

Sulph. Magnesia,	1 dr.
Senna,	2 "
Scammony,	6 grs.
Liquorice,	1 dr.
Ginger,	3 grs.
Coriander,	5 "

With flavoring ingredients.

Dose.—Child five years old, one or two teaspoonfuls; adult, one or two tablespoonfuls.

This preparation is being used extensively throughout the country. It was originated with the design of furnishing a liquid Cathartic remedy that could be prescribed in a palatable form. It will be taken by children with a relish.

MAINE INSANE HOSPITAL, AUGUSTA, Feb. 25th, 1875.

I am happy to say that we are much pleased with the Compound Cathartic Elixir. It has, so far, proved the best Liquid Cathartic we have ever used in our Institution. It acts effectively and kindly, without irritation or pain. H. M. HARLOW, M. D.

All our goods are of guaranteed strength and uniformity.

Strychnia Compound Pill.

Strychnia, - - - 1-100 grain.
Phosphorus, - - - 1-100 "
Ex. Cannabis Indica, 1-16 "
Ginseng, - - - 1 "
Carb. Iron, - - - 1 "

Dose—One to two.

A reliable and efficient Pill in Anaphrodisia, Paralysis, Neuralgia, Loss of Memory, Phthisis, and all affections of the Brain resulting from loss of Nerve Power. Price, 80 cents per hundred.
Sent by mail, prepaid, on receipt of price.

Hæma, Quinia and Iron Pill.

Ext. Blood, - - - 2 grains.
Quinine Sulph., - - - 1 grain.
Sesqui Oxide Iron, - - - 1 "

Dose—One to three.

Price, \$2.00 per hundred.

Sent by mail, prepaid, on receipt of price.

—oo—

HEMA PILLS.

We beg to present to the Medical Profession for their special consideration our several preparations of Blood Pills. The use of Blood medicinally, and the importance of its administration in a large class of diseases, has arrested the attention of many of the leading Physicians of Europe, and has received their warmest attestation. Prominent among these may be mentioned Prof. Panum, of the University of Copenhagen, who is using it with great success in the hospital of that city.

At the abattoir in this city, Boston, and in every part of the country, there can be seen numerous persons afflicted with Pulmonary Affections, Chlorosis, Paralysis, Anemia, and other ailments, who are daily drinking the blood of the ox, and many with more benefit than they have derived from any other source.

The blood used by us being *Arterialized Male Bovine only*, is secured as it flows from the animal in a vacuum pan, and the watery portion (85 per cent.), eliminated at a temperature not exceeding 100° F., the remaining mass, containing every constituent of the blood, being the base of our preparations.

HÆMA (Ext. Blood), 4 grs.

Dose.—Two to four

90 cts. per hundred.

HÆMA COMP.

Ext. Blood, 2 grs.

Lacto-Phosphate Lime, 1 gr.

Pepsin, 2 gr.

Dose.—One to three.

\$1.50 per hundred.

HÆMA, QUINIA, IRON AND
STRYCHNIA.

Ext. Blood, 2 grs.

Quinine Sulph., 1 gr.

Sesqui Oxide Iron, 1 gr.

Strychnine, 1-75 gr.

Dose.—One to three.

\$2.00 per hundred.

Samples sent to Physicians, postage prepaid, on receipt of price.

—oo—

LACTOPEPTINE and most of our leading preparations can be obtained from the principal Druggists of the United States.

—oo—

SUGAR COATED PILLS, TROCHES AND POWDERS CAN BE SECURELY SENT

BY MAIL.

—oo—

Price of LACTOPEPTINE by Mail.

One ounce sent by mail, prepaid, on receipt of . . . \$1 00

One pound " " " " " " . . . 13 00

A fraction of an ounce or pound sent by mail on receipt of corresponding price.

—oo—

We guarantee all goods of our manufacture.

In ordering, please designate R. & C.'s manufacture.

Send for PRICE LIST, DOSE BOOKS and DISCOUNTS.

OCT. 15TH, 1875.

Respectfully,

REED & CARNRICK, Manufacturing Pharmacists,

198 FULTON STREET, NEW YORK.

E. FOUGERA & CO.'S

Medicated Globules.

The form of Globules is by far the most convenient as well as the most elegant form for administering liquid preparations or powders of unpleasant taste or odor. The following varieties are now offered :

Globules of Ether; Chloroform; Oil of Turpentine; Apiol;
 Phosphorated Oil, containing 1-60th grain of Phosphorus;
 Phosphorated Oil, containing 1-30th grain of Phosphorus;
 Tar; Venice Turpentine; Copaiba; Copaiba & Tar;
 Oleo-Resin of Cubebs; Balsam of Peru;
 Oil of Eucalyptus; Cod Liver Oil; Rhubarb;
 Bi-carb. of Soda, Sulph. Quinia, &c.

The superiority of these Globules over other forms consists in the ease with which they are taken, and in their ready solubility and hence promptness of action.

They are put up in bottles of 100 each.

For descriptive circulars and samples address,

E. FOUGERA & CO.,
30 North William Street, New York.

PARIS, 1867.



Prize Medal.

1868.



Silver Medal.

1872.



Gold Medal.

1873, VIENNA.



Medal of Merit.

BOUDAULT'S PEPSINE,

And Wine, Elixir, Syrup, Pills and Lozenges of Pepsine.

Since 1854, when Pepsine was first introduced by Messrs. CORVISART and BOUDAULT, Boudault's Pepsine has been the only preparation which has at all times given satisfactory results.

The medals obtained by Boudault's Pepsine at the different exhibitions of 1867, 1868, 1872, and recently at the Vienna Exhibition of 1873, are unquestionable proofs of its excellence.

In order to give physicians an opportunity to judge for themselves, all Boudault's Pepsine will hereafter be accompanied by a circular giving plain directions for testing it. These tests will enable any one to satisfy himself of the superiority of Boudault's Pepsine, which is really the *cheapest*, since its use will not subject physicians and patients alike to disappointment.

CAUTION.—In order to guard against imitations each bottle will hereafter be sealed by a red metallic capsule, bearing the stamp of our trade mark, and secured by a band having a fac-simile of the medals, and the signature of Flottot, the manufacturer.

Is sold in 1 oz., 3 oz., 10 oz., Bottles.

E. FOUGERA & CO., New York,
 GENERAL AGENTS FOR THE U. S.

"LA PLATA"

Extract of Meat.

Prepared by
A. BENITES & CO.,
Buenos Ayres, S. A.



None genuine without this
 TRADE MARK,
 "Bullock Reclining."

This is a pure extract of beef, free from fat and gelatine. Each pound contains the soluble nutritive constituents of 34 to 36 pounds of the finest beef, exclusive of bones or fat, corresponding to about 45 pounds of good butcher's meat. *It will keep unaltered for years in any climate.*

CAUTION.—Persons wishing to use a pure extract of beef, will do well to specify the "LA PLATA," with above trade-mark, and accept no other.

DELAORE'S LA "PLATA"

Extract of Meat Chocolate,

Containing in one preparation, and under a most agreeable form, a large proportion of tonic and nutritive principles.

It is a *pure chocolate*, containing the purest extract of beef, and is a most useful tonic and nutritive agent for invalids and convalescents, and for persons of feeble or delicate constitutions.

It contains 3 per cent. of La Plata Extract of Meat, and every square represents the nutritive constituents of $1\frac{1}{4}$ ounce of fresh beef.

It is used as ordinary chocolate, and is sold in packages, with full directions.

HEMATOSINE,

This new preparation, recently introduced in Europe, may be truly called a
PHYSIOLOGICAL REMEDY.

HEMATOSINE constitutes the basis of the red globules of the blood, and is the organic substance now known, which is richest in assimilable iron.

In **HEMATOSINE** Iron is presented in the normal state in which it exists in the blood, and hence it is superior to other ferruginous preparations, for it enters into the circulation without undergoing any change. It is therefore received without fatigue by the most delicate and the most sensitive constitutions, which will not bear the ordinary chalybeates.

Hemosine is offered in the form of pills, and is applicable to all cases in which the use of iron is indicated.

It will be found a most efficacious remedy for *Anæmia, Chlorosis, Leucorrhœa, Amenorrhœa, Dysmenorrhœa, General Debility, Slow Convalescence, &c.*

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General Agents for the United States,

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Grimault & Co.'s Pharmaceutical Products

Grimault's Guarana,

Prepared from the *Paulinia Sorbilis* of Brazil. It is a sovereign remedy in *Headache, Neuralgia* and *Diarrhæa*.

Iodised Syrup of Horse-Radish.

A pleasant substitute for Cod Liver Oil, prepared from juices of anti-scorbutic plants. Each tablespoonful contains one grain of Iodine, so intimately combined as to be insensible to the action of starch.

Dr. Leras' Phosphate of Iron,

In solution, Syrup or Sugar Coated Pills.

A pleasant combination of Pyrophosphate of Iron and Soda, colorless and tasteless. It is readily assimilated and used with great success in *Chlorosis, Anæmia, Dysmenorrhæa, etc.*, replacing all other ferruginous preparations. It never causes constipation.

Syrup of Hypophosphite of Lime,

Dr. Churchill's Prescription.

Prescribed by the most distinguished physicians for *affections of the lungs, Phthisis, etc.* Each tablespoonful contains two grains of the pure hypophosphite.

Also Syrup of Hypophosphite of Soda, of Iron and of Manganese.

Digestive Lozenges and Powders of the Alkaline Lactates.

(SODA AND MAGNESIA.)

OF BURIN DU BUISSON.

The researches of DR. PETREQUIN, Prof. at the School of Medicine of Lyons, aided by MR. BURIN DU BUISSON, the eminent chemist, have established beyond a doubt the *special adaptation of the Alkaline Lactates* to the treatment of functional diseases of the digestive organs. These preparations will be found very beneficial in *imperfect and laborious digestion, heartburn, gastralgia, loss of appetite, nausea, distention of bowels and stomach*. They are more certain and less irritating than calcined Magnesia or preparations having *Charcoal, Bismuth, or bicarb of Soda* for their basis.

Digestive Lozenges and Powders of the Alkaline Lactates with Pepsine.

These are prescribed in certain cases when the digestive powers are deranged, weakened, or null.

Dusart's Lacto-Phosphate of Lime.

(SYRUP AND WINE.)

DUSART'S PREPARATIONS OF LACTO-PHOSPHATE OF LIME present to the physician the phosphate of lime in the combination in which it exists in the stomach, after it has been acted upon by the gastric fluid. It is, therefore, ready for assimilation, and hence, the Lacto-Phosphate should be preferred to the ordinary bone phosphate, which frequently is insoluble, or nearly so.

DUSART'S Work on the "PHYSIOLOGICAL AND THERAPEUTIC ACTION OF PHOSPHATE OF LIME" will be sent free on application to the Agents.

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SAVORY & MOORE, 143 New Bond Street, London, beg to call the attention of the Profession generally to some of the later preparations brought out in England, the purity and uniform strength of which can be guaranteed.

SAVORY & MOORE'S

Genuine Pancreatic Emulsion and Pancreatine.

In diseases where Wasting, loss of power of Digestion and Assimilation are prominent symptoms, the Pancreatic Emulsion and Pancreatine are the most potent Remedial Agents. When Cod Liver Oil fails to increase weight, or cannot be tolerated by the stomach, the Pancreatic Preparations are the only remedies which can supply its place, and give the power of digesting the oil.

PANCREATISED COD LIVER OIL.

A reliable combination of Pancreatine with the Oil, rendering its digestion easy and rapid.

PANCREATINE WINE.

For the digestion of Cod Liver Oil, solid Fat, and Food generally. The Wine and Cod Liver Oil readily form an Emulsion when shaken together in equal proportions.

PHOSPHORISED COD LIVER OIL.—With Quinine.

PHOSPHORUS PILLS—PURE.

Of all sizes and strengths, non-resinous and perfectly soluble. Most of the uncertainty of operation experienced in the internal administration of Phosphorus may be traced to the use of Oxydised or Allotropic Phosphorus, preparations which are less active and more uncertain.

PEPTODYN, the New Digestive.

Digests all kinds of Food—the Farinaceous, Fibrinous and Oleaginous: being a combination of the several active principles of the digestive secretions, Peptic, Pancreatic, &c.

Five grains of Peptodyn (Powder) digests 100 grains of Coagulated Albumen, 100 grains of Fat, 100 grains of Starch.

BEST FOOD FOR INFANTS,

As supplied to the Royal Families of England and Russia.

Feeding infants on the best, *i. e.* the most *nourishing* and *easily digested* Food, has recently occupied much of the attention of the profession, and the fallacy and danger of *employing Starch*, in the form of *Corn Flour* and other *high sounding titles* has been repeatedly pointed out.

This food resembles Mother's Milk more closely than any other kind, perfectly fulfilling its object—that of promoting the GROWTH and HEALTH of the Child.

DATURA TATULA, for Asthma.

and Chronic Bronchitis. Recommended by the Profession as a remedy of great power and usefulness in cases of short and difficult breathing, spasmodic coughing, &c. Grown by SAVORY & MOORE, and prepared in all forms for smoking and inhalation.

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For Hypodermic Administration.

The following are now ready for issue in small wallets, separately, or in leather cases containing six or more wallets of various discs, with small spoon, &c., complete:

Apomorphia, 1-10th of a grain.

Atropia Sulph., 1-120th of a grain.

Cocleia, 1-14th of a grain.

Caffeine, one-half of a grain.

Quinine, one half of a grain.

Strychnia, 1-300th of a grain.

Elaterium, 1-12th of a grain.

Ergotine, 1-3rd of a grain.

Morphia, 1-6th of a grain.

Physostigmine (or Eserine), equal to

1-6th of a grain of the extract of

Calabar Bean.

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SAVORY & MOORE, 143 New Bond Street, London.

For Sale by the leading Druggists in America.

CINCHO-QUININE.

Cincho-Quinine holds ALL the important constituents of *Peruvian Bark* in their alkaloidal condition. It contains no sulphate of cinchonine or sulphate of quinine, but cinchonine, quinine, quinidine, etc., without acid combinations. It is now nearly four years since it was placed in the hands of physicians for trial, and the verdict in its favor is decisive.

At the present price of sulphate of quinine, it is sold at about one-half the price of that agent, and with the testimony offered that it has equal tonic and anti-periodic effects, and that it is less objectionable, there seems to be no good reason why it should not be universally employed by the profession.

The cut below gives the size of the one-ounce phial, and the form of putting up.

Dr. J. A. PERKINS, of Chestertown, Md., under date of Feb. 10, 1873, writes us as follows: "I have used your preparation of Cincho-Quinine during the past summer in a malarious district. I find it entirely reliable as a substitute for the sulphate of quinine. It produces less unpleasant effects on the head, and is much better borne by the stomach. In the cases of children, I have found it to be a very desirable remedy, on account of the much less unpleasant taste. I use it satisfactorily in all cases as a substitute for the sulphate."

I have used one-and-a-half ounces of the Cincho-Quinine, and I think very favorably of its effects. In a case of intermittent fever (the patient from Tennessee), I found it to operate as well and as promptly as sulphate of quinine, without any unpleasant head symptoms. In no case have I discovered any unpleasant cerebral disturbance, as is often found in the use of the quinine.—J. M. At-
DRICH, M.D., Fall River, Mass.

I have used several ounces of Cincho-Quinine with the most complete success. I prefer it to the sulphate of quinine in intermittents, especially with children. I can strongly recommend it to the profession generally.—J. H. FREY, M.D., Perry, Iowa.

The Cincho-Quinine which I have used gave entire satisfaction. It has all the advantages you claim for it, and doubtless it will in time supersede the use of sulphate of quinine entirely.—SAMUEL V. COONS, M.D., Madison, Ala.

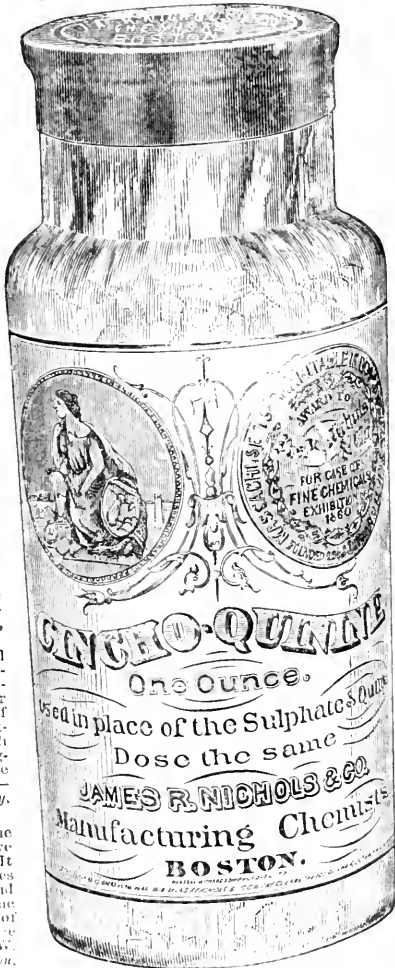
We can now supply SUGAR-COATED CINCHO-QUININE PILLS of three sizes, namely, 1 grain, 2 grains, and 3 grains, in such quantities as are wanted. They are placed in vials holding 100 each. The price is about one-half that of Quinine Pills. Dose the same.

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Successors to JAMES R. NICHOLS & CO.

Manufacturing Chemists,
BOSTON, MASS.

Manufacturers of Acids, Chloroform, Ethers, Preparations of Gold, Silver, Tin, Zinc, Lead, Iron, Blomath, and all
Fine Chemicals used in Medicine or the Arts.



I have used Cincho-Quinine in eight or ten cases, and have reason to think well of the results. I give it as I do the sulphate, 10 grains in five doses during the intermission, and five grains one or two hours before a paroxysm is due, and continue to give five grains once a week for three weeks. I shall continue to use it, and wish you to send me one ounce by mail.—J. C. DOWNING, M.D., Wapping Falls, New York.

After further continued trial of the Cincho-Quinine, I can safely say that it is a most excellent remedy. The absence of cinchonism in its use, its comparatively pleasant taste, its cheapness, with its fully equal tonic and anti-periodic qualities, make it an article which must soon be indispensable in the list of remedies of every intelligent physician.—S. A. BUTTERFIELD, M.D., Indianapolis, Ind.

I have been using the Cincho-Quinine in my practice in intermittents and remittents, and I think well of it. I believe it to be quite equal to the sulphate, with all the advantages which you claim for it.—J. C. ROSS, M.D., Lincoln, Ill.

I have used an ounce of Cincho-Quinine in some obstinate cases of intermittent neuralgia and ague, and am happy to state that it has thus far sustained in all the anticipation raised by what you have claimed for it. Dr. S. S. CUTLER, of this city, has an extensive general practice, and he informed me a few days ago that the Cincho-Quinine was giving satisfaction.—J. H. BRECH, Coldwater, Mich.

ESTABLISHED 1856.

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Manufacturers of, and Wholesale and Retail Dealers in

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Dental Instruments, Apparatus, and Furnishings,

Medical, Surgical and Dental Books, Etc.,

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Where they have opened a GREATLY INCREASED Stock of the above articles, which they will sell for Cash as low as the Eastern manufacturers.

Parties ordering may rely on getting suited, or the goods may be returned.

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